STIC Search Report
Biotech-Chem Library

STIC Database Tracking Number: 151084

TO: Susan Hanley Location: rem/3d70/3e71 Art Unit: 1651 Monday, April 25, 2005 Case Serial Number: 10/047251	From: Barb O'Bryen Location: Biotech-Chem Library Remsen 1a69 Phone: 571-272-2518 BOB barbara.obryen@uspto.gov

Search Notes

```
=> fil capl
FILE 'CAPLUS' ENTERED AT 16:56:36 ON 26 APR 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)
```



```
FILE COVERS 1907 - 26 Apr 2005  VOL 142 ISS 18
FILE LAST UPDATED: 25 Apr 2005  (20050425/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

  This file contains CAS Registry Numbers for easy and accurate
  substance identification.
'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE

=> d que l102; d que l98; d que l91; d que l82

L99 (      1148)SEA FILE=CAPLUS ABB=ON  ABC/OBI(W)(TRANSPORT?/OBI OR BINDING/OB
                I)
L100(      2879)SEA FILE=CAPLUS ABB=ON  ATP BINDING CASSETTE#/OBI
L101(       185)SEA FILE=CAPLUS ABB=ON  (L99 OR L100)(L)(DOWN REGULAT?/OBI OR
                DOWNREGULAT?/OBI OR ANTAG?/OBI OR INHIB?/OBI OR BLOCK?/OBI)
L102          7 SEA FILE=CAPLUS ABB=ON  L101 AND (AGR/RL)
```

Role AGR = agricultural use

```
L92 (     53514)SEA FILE=CAPLUS ABB=ON  PLANT#/CT OR EMBRYOPHYTA/CT
L93 (      7729)SEA FILE=CAPLUS ABB=ON  PLANT CELL/CT
L94 (      1148)SEA FILE=CAPLUS ABB=ON  ABC/OBI(W)(TRANSPORT?/OBI OR BINDING/OB
                I)
L95 (      2879)SEA FILE=CAPLUS ABB=ON  ATP BINDING CASSETTE#/OBI
L96 (        30)SEA FILE=CAPLUS ABB=ON  (L94 OR L95) AND (L92 OR L93)
L97 (    125458)SEA FILE=CAPLUS ABB=ON  ASSAY?/OBI OR BIOASSAY?/OBI
L98           2 SEA FILE=CAPLUS ABB=ON  L96 AND L97


L83 (     53514)SEA FILE=CAPLUS ABB=ON  PLANT#/CT OR EMBRYOPHYTA/CT
L84 (      3894)SEA FILE=CAPLUS ABB=ON  HERBICIDE RESISTANCE/CT
L85 (     25952)SEA FILE=CAPLUS ABB=ON  DRUG RESISTANCE/CT
L86 (      7729)SEA FILE=CAPLUS ABB=ON  PLANT CELL/CT
L87 (      1148)SEA FILE=CAPLUS ABB=ON  ABC/OBI(W)(TRANSPORT?/OBI OR BINDING/OB
                I)
L88 (      2879)SEA FILE=CAPLUS ABB=ON  ATP BINDING CASSETTE#/OBI
L89 (        30)SEA FILE=CAPLUS ABB=ON  (L87 OR L88) AND (L83 OR L86)
L90 (         4)SEA FILE=CAPLUS ABB=ON  L89 AND (L84 OR L85)
L91           1 SEA FILE=CAPLUS ABB=ON  ANION/TI AND L90
```

```
L74 (         78)SEA FILE=REGISTRY ABB=ON  APYRASE?/CN
L75 (      53514)SEA FILE=CAPLUS ABB=ON  PLANT#/CT OR EMBRYOPHYTA/CT
L76 (       3894)SEA FILE=CAPLUS ABB=ON  HERBICIDE RESISTANCE/CT
L77 (      25952)SEA FILE=CAPLUS ABB=ON  DRUG RESISTANCE/CT
L78 (       7729)SEA FILE=CAPLUS ABB=ON  PLANT CELL/CT
L79 (        873)SEA FILE=CAPLUS ABB=ON  L74
L80 (          1)SEA FILE=REGISTRY ABB=ON  PHOSPHATASE/CN
L81 (      14285)SEA FILE=CAPLUS ABB=ON  L80
L82              2 SEA FILE=CAPLUS ABB=ON  (L76 OR L77) AND (L75 OR L78) AND (L79
                   OR L81)


=> s l102 or l98 or l91 or l82

L110            11 L102 OR L98 OR L91 OR L82

=> fil agricola; d que l104; d que l109

FILE 'AGRICOLA' ENTERED AT 16:56:38 ON 26 APR 2005

FILE COVERS 1970 TO 6 Apr 2005 (20050406/ED)

Compiled and distributed by the National Agricultural Library
of the Department of Agriculture of the United States of
America.  It contains copyrighted material.  All rights
reserved.  (2005)

This file contains CAS Registry Numbers for easy and accurate
substance identification.


L103(         24)SEA FILE=AGRICOLA ABB=ON  (REDUC? OR DECREAS? OR REVERS?)(3A)((
                   DRUG# OR HERBICID? OR PESTICID?)(2A)RESISTAN?)
L104             1 SEA FILE=AGRICOLA ABB=ON  BISAMIDE# AND L103


L105(     414394)SEA FILE=AGRICOLA ABB=ON  PLANT#
L106(        305)SEA FILE=AGRICOLA ABB=ON  ATP BINDING CASSETTE# OR  ABC(W)(TRAN
                   SPORT? OR BINDING)
L107(         49)SEA FILE=AGRICOLA ABB=ON  L106(L)(INHIB? OR BLOCK? OR ANTAG?
                   OR DOWN REGULAT? OR DOWNREGULAT?)
L108(         21)SEA FILE=AGRICOLA ABB=ON  L105 AND L107
L109             1 SEA FILE=AGRICOLA ABB=ON  L108 AND DRUG#/CT


=> s l104 or l109

L111             2 L104 OR L109

=> fil caba

FILE 'CABA' ENTERED AT 16:56:40 ON 26 APR 2005
COPYRIGHT (C) 2005 CAB INTERNATIONAL (CABI)

FILE COVERS 1973 TO 7 Apr 2005 (20050407/ED)

This file contains CAS Registry Numbers for easy and accurate
```

substance identification.

The CABA file was reloaded 7 December 2003. Enter HELP RLOAD for details.

=> d que l16; d que l28;d que l37; d que l42

```
L6          149 SEA FILE=CABA ABB=ON  APYRASE#
L13     1711551 SEA FILE=CABA ABB=ON  PLANTS/BT
L14          45 SEA FILE=CABA ABB=ON  L6 AND L13
L15           8 SEA FILE=CABA ABB=ON  EFFECT? AND L14
L16           2 SEA FILE=CABA ABB=ON  L15 AND (REAGENTS OR REST)/TI


L1         1101 SEA FILE=CABA ABB=ON  PHOSPHATASE#(5A)(INHIB? OR BLOCK? OR
                ANTAG?)
L13     1711551 SEA FILE=CABA ABB=ON  PLANTS/BT
L18         273 SEA FILE=CABA ABB=ON  L1 AND L13 AND (EFFECT? OR AFFECT? OR
                COMPOUND#)
L19       52201 SEA FILE=CABA ABB=ON  ENZYME ACTIVITY/CT
L23        6293 SEA FILE=CABA ABB=ON  ENZYME INHIBITORS/CT
L25        5636 SEA FILE=CABA ABB=ON  PLANT TOXICOLOGY/CC
L27        1175 SEA FILE=CABA ABB=ON  ENZYMES/CT AND INHIBITORS/CT
L28           3 SEA FILE=CABA ABB=ON  L18 AND L19 AND (L23 OR L27) AND L25


L2        28748 SEA FILE=CABA ABB=ON  (DRUG# OR MULTIDRUG# OR HERBICID? OR
                PESTICID?)(3A)(RESIST? OR TOLERA?)
L13     1711551 SEA FILE=CABA ABB=ON  PLANTS/BT
L29        7419 SEA FILE=CABA ABB=ON  L2 AND L13
L30       29399 SEA FILE=CABA ABB=ON  "PESTICIDE AND DRUG RESISTANCE"/CC
L31        3463 SEA FILE=CABA ABB=ON  L29 AND L30
L32        8049 SEA FILE=CABA ABB=ON  (REDUC? OR DECREAS?)(3A)(TOLERA? OR
                RESIST?)
L33         124 SEA FILE=CABA ABB=ON  L31 AND L32
L37           2 SEA FILE=CABA ABB=ON  L33 AND (MALATHION OR CRUS)/TI


L3          320 SEA FILE=CABA ABB=ON  ABC(W)(TRANSPORTER# OR BINDING CASSETTE#)

L39          12 SEA FILE=CABA ABB=ON  L3(5A)(INHIB? OR BLOCK? OR ANTAG? OR
                DOWN REGULAT? OR DOWNREGULAT?)
L41      195331 SEA FILE=CABA ABB=ON  PLANT PATHOLOGY/CT
L42           2 SEA FILE=CABA ABB=ON  L39 AND L41
```

=> s l16 or l28 or l37 or l42

```
L112          9 L16 OR L28 OR L37 OR L42
```

=> fil biosis; d que l57;d que l71

```
FILE 'BIOSIS' ENTERED AT 16:56:42 ON 26 APR 2005
```


FILE COVERS 1969 TO DATE.
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT
FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 20 April 2005 (20050420/ED)

FILE RELOADED: 19 October 2003.

L45 3594 SEA FILE=BIOSIS ABB=ON ABC(W)(TRANSPORTER# OR BINDING CASSETTE#) OR ATP BINDING CASSETTE#
L50 2257562 SEA FILE=BIOSIS ABB=ON PLANTS/IT
L55 61 SEA FILE=BIOSIS ABB=ON L45(3A)((INHIB? OR BLOCK? OR ANTAG? OR DOWN REGULAT? OR DOWNREGULAT?))
L56 11 SEA FILE=BIOSIS ABB=ON L55 AND L50
L57 5 SEA FILE=BIOSIS ABB=ON L56 AND (YEAST OR FLU OR EFFLUX OR C)/TI

L43 112304 SEA FILE=BIOSIS ABB=ON PHOSPHATASE#
L44 1007 SEA FILE=BIOSIS ABB=ON APYRASE#
L50 2257562 SEA FILE=BIOSIS ABB=ON PLANTS/IT
L51 10647 SEA FILE=BIOSIS ABB=ON (L43 OR L44)(5A)(INHIB? OR BLOCK? OR ANTAG?)
L69 182079 SEA FILE=BIOSIS ABB=ON EXTRACELLULAR? OR EXTRA CELLULAR? OR ECTO
L70 44 SEA FILE=BIOSIS ABB=ON L69 AND L50 AND L51
L71 3 SEA FILE=BIOSIS ABB=ON L70 AND (POLLEN OR SYSTEMIN)/TI

=> s l57 or l71

L113 8 L57 OR L71

=>dup rem l111,l112,l110,l113
FILE 'AGRICOLA' ENTERED AT 16:57:07 ON 26 APR 2005

FILE 'CABA' ENTERED AT 16:57:07 ON 26 APR 2005
COPYRIGHT (C) 2005 CAB INTERNATIONAL (CABI)

FILE 'CAPLUS' ENTERED AT 16:57:07 ON 26 APR 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'BIOSIS' ENTERED AT 16:57:07 ON 26 APR 2005
Copyright (c) 2005 The Thomson Corporation
PROCESSING COMPLETED FOR L111
PROCESSING COMPLETED FOR L112
PROCESSING COMPLETED FOR L110
PROCESSING COMPLETED FOR L113
L114 29 DUP REM L111 L112 L110 L113 (1 DUPLICATE REMOVED)
ANSWERS '1-2' FROM FILE AGRICOLA
ANSWERS '3-11' FROM FILE CABA
ANSWERS '12-22' FROM FILE CAPLUS
ANSWERS '23-29' FROM FILE BIOSIS

=> d iall 1-11; d ibib ed abs hitind 12-22; d iall 23-29; fil hom

L114 ANSWER 1 OF 29 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved.

(2005) on STN
ACCESSION NUMBER: 1998:41322 AGRICOLA
DOCUMENT NUMBER: IND21232490
TITLE: Evidence for the existence of a sulfonylurea-receptor-like protein in **plants**: modulation of stomatal movements and guard cell potassium channels by sulfonylureas and potassium channel openers.
AUTHOR(S): Leonhardt, N.; Marin, E.; Vavasseur, A.; Forestier, C.
AVAILABILITY: DNAL (500 N21P)
SOURCE: Proceedings of the National Academy of Sciences of the United States of America, Dec 9, 1997. Vol. 94, No. 25. p. 14156-14161
Publisher: Washington, D.C. : National Academy of Sciences,
CODEN: PNASA6; ISSN: 0027-8424
NOTE: Includes references
PUB. COUNTRY: District of Columbia; United States
DOCUMENT TYPE: Article; Conference
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English
ABSTRACT:

Limitation of water loss and control of gas exchange is accomplished in ***plant*** leaves via stomatal guard cells. Stomata open in response to light when an increase in guard cell turgor is triggered by ions and water influx across the plasma membrane. Recent evidence demonstrating the existence of **ATP-binding cassette** proteins in ***plants*** led us to analyze the effect of compounds known for their ability to modulate ATP-sensitive potassium channels (K-ATP) in animal cells. By using epidermal strip bioassays and whole-cell patch-clamp experiments with Vicia faba guard cell protoplasts, we describe a pharmacological profile that is specific for the outward K+ channel and very similar to the one described for ATP-sensitive potassium channels in mammalian cells. Tolbutamide and glibenclamide induced stomatal opening in bioassays and in patch-clamp experiments, a specific **inhibition** of the outward K+ channel by these compounds was observed. Conversely, application of potassium channel openers such as cromakalim or RP49356 triggered stomatal closure. An apparent competition between sulfonylureas and potassium channel openers occurred in bioassays, and outward potassium currents, previously **inhibited** by glibenclamide, were partially recovered after application of cromakalim. By using an expressed sequence tag clone from an Arabidopsis thaliana homologue of the sulfonylurea receptor, a 7-kb transcript was detected by Northern blot analysis in guard cells and other tissues. Beside the molecular evidence recently obtained for the expression of **ATP-binding** ***cassette*** protein transcripts in **plants**, these results give pharmacological support to the presence of a sulfonylurea-receptor-like protein in the guard-cell plasma membrane tightly involved in the outward potassium channel regulation during stomatal movements.

CLASSIFICATION: F600 Plant Physiology and Biochemistry; F200 Plant Breeding and Genetics
CONTROLLED TERM (CABA): binding proteins; commelina communis; **drugs**; electric current; electrophysiology; epidermis; glibenclamide; guard cells; ion transport; leaves; messenger rna; **plant** proteins; potassium; protoplasts; receptors; stomatal movement; tolbutamide; vicia faba
CAS REGISTRY NO.: 64-77-7 (TOLBUTAMIDE)
7440-09-7 (POTASSIUM)
10238-21-8 (GLIBENCLAMIDE)
94470-67-4 (CROMAKALIM)

56-65-5Q, 94587-45-8Q (ATP)

L114 ANSWER 2 OF 29 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2005) on STN

ACCESSION NUMBER: 93:74833 AGRICOLA
DOCUMENT NUMBER: IND93032338
TITLE: **Bisamides** from Aglaia species: structure analysis and potential to **reverse drug resistance** with cultured cells.
AUTHOR(S): Saifah, E.; Puripattanavong, J.
CORPORATE SOURCE: University of Illinois at Chicago, Chicago, IL
AVAILABILITY: DNAL (442.8 L77)
SOURCE: Journal of natural products, Apr 1993. Vol. 56, No. 4. p. 473-477
Publisher: Downers Grove, Ill.: American Society of Pharmacognosy.
CODEN: JNPRDF; ISSN: 0163-3864
NOTE: Includes references.
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English

CLASSIFICATION: F600 Plant Physiology and Biochemistry; S200 Agricultural Products, Plant
CONTROLLED TERM (CABA): alkaloids; amides; biochemistry; cinnamic acid; leaves; meliaceae; plant extracts; structure
SUPPLEMENTARY TERM: aglaia pyramidata; molecular structure
GEOGRAPHIC TERM (CABA): thailand
CAS REGISTRY NO.: 621-82-9Q, 28934-71-6Q (CINNAMIC ACID)

L114 ANSWER 3 OF 29 CABA COPYRIGHT 2005 CABI on STN
ACCESSION NUMBER: 2004:182150 CABA
DOCUMENT NUMBER: 20043172708
TITLE: **Effect** of cadmium on hydrolytic enzymes in maize root and coleoptile
AUTHOR: Siroka, B.; Huttova, J.; Tamas, L.; Simonovicova, M.; Mistrik, I.
CORPORATE SOURCE: Institute of Botany, Slovak Academy of Sciences, Dubravska cesta 14, SK-84523 Bratislava, Slovakia. Ladislav.Tamas@savba.sk
SOURCE: Biologia (Bratislava), (2004) Vol. 59, No. 4, pp. 513-517. 16 ref.
Publisher: SAP - Slovak Academic Press Ltd. Bratislava
ISSN: 0006-3088
PUB. COUNTRY: Slovakia
DOCUMENT TYPE: Journal
LANGUAGE: English
ENTRY DATE: Entered STN: 20041108
Last Updated on STN: 20041108

ABSTRACT:
Impact of cadmium on activity of some hydrolytic enzymes was studied in maize seedlings exposed to different concentration of Cd (at 1, 10, 50, 250 and 1000 [micro]M) for 24 h. Our results confirmed high sensitivity of maize cv. Tina seedlings to Cd as even the lowest 1 [micro]M Cd was able to induce 30% reduction of root growth. The inhibition of root growth was dose dependent and positively correlated up to 50 [micro]M Cd with the loss of root cell viability of detected by Evans blue uptake. At higher Cd concentrations (250-1000

[micro]M) no further increase in Evans blue uptake was observed in spite of nearly total root growth **inhibition.** With the exception of ***phosphatase*** activity at low Cd concentration, the activity of hydrolytic enzymes determined in 1 cm long apical part of primary root decreased with increasing Cd concentration. Glucosidase and esterase were found to be the most sensitive to Cd. In comparison with enzymes activity in apical part of primary root the activity of enzymes in basal part and in coleoptile showed significantly lower sensitivity to Cd and also a stimulation of enzyme activity was observed. In contrast to a significant inhibition of hydrolases observed at 1 mM Cd in the apical part of root in in vivo experiments we did not confirm their inhibition by the same Cd concentration in vitro. In addition to Cd toxicity to maize seedlings possible role of the studied enzymes in root growth inhibition are discussed.

CLASSIFICATION: FF005 Field Crops (New March 2000); FF060 Plant Physiology and Biochemistry; FF800 **Plant Toxicology**
SEQUENCE CODE: 0Q; 7Q; 6P; CA
BROADER TERM: Zea; Poaceae; Cyperales; monocotyledons; angiosperms; Spermatophyta; **plants**
CONTROLLED TERM: cadmium; coleoptiles; **enzyme activity**; **enzyme inhibitors**; enzymes; esterases; heavy metals; maize; phosphoric monoester hydrolases; roots; toxic substances; toxicity; viability
CAS REGISTRY NUMBER: 7440-43-9
ORGANISM NAME: Zea mays

L114 ANSWER 4 OF 29 CABA COPYRIGHT 2005 CABI on STN
ACCESSION NUMBER: 2004:123968 CABA
DOCUMENT NUMBER: 20043102163
TITLE: Activity of some enzymes in barley caryopses during imbibition in aluminium presence
AUTHOR: Simonovicova, M.; Tamas, L.; Huttova, J.; Siroka, B.; Mistrik, I.
CORPORATE SOURCE: Botanicky ustav, Slovenska akademia vied, Dubravska cesta 14, 845 23 Bratislava, Slovakia. Marta.Simonovicova@savba.sk
SOURCE: Plant, Soil and Environment, (2004) Vol. 50, No. 5, pp. 189-195. 39 ref.
Publisher: Institute of Agricultural and Food Information. Prague
ISSN: 1214-1178
PUB. COUNTRY: Czech Republic
DOCUMENT TYPE: Journal
LANGUAGE: English
SUMMARY LANGUAGE: Czech
ENTRY DATE: Entered STN: 20040806
Last Updated on STN: 20040806

ABSTRACT:
Peroxidase, superoxide dismutase, acid and alkaline phosphatase, esterase and glucosidase activities were studied during imbibition of barley (cv. Alfor) caryopses in the presence of different aluminium (Al) concentrations (1, 2, 4 and 8 mM AlCl3). Antioxidant enzymes (peroxidase and superoxide dismutase) showed elevated activity already 2 h after the onset of imbibition in the presence of Al. In contrast hydrolytic enzymes (phosphatases, glucosidase and esterase) were only moderately activated at low Al concentrations (1-2 mM), while strong inhibition was observed at higher Al concentrations (4-8 mM). In in vitro conditions 8 mM Al had no **effect** on the activity of acid ***phosphatase*** , moderately **inhibited** alkaline ***phosphatase*** and glucosidase, and strongly **inhibited** esterase

activity. During imbibition of caryopses in solution without Al, an increase of the pH value of the imbibition solution from 4 to 6 occurred, while in the presence of Al, the shift in pH value was less expressive and dependent on Al concentration. At 8 mM Al concentration, no change in the pH value of the imbibition solution was observed. The SDS-PAGE analysis of polypeptides released to the imbibition solution in the presence of Al revealed the accumulation of two polypeptides with relative molecular mass of 35 and 18 kDa. The release of 96 and 27.5 kDa polypeptides was completely inhibited at 8 mM Al concentration. These results confirmed that Al is able to influence different physiological processes already during seed imbibition and early growth phases of barley seedlings.

CLASSIFICATION:	FF005 Field Crops (New March 2000); FF060 Plant Physiology and Biochemistry; FF170 in vitro Culture of Plant Material; FF800 **Plant Toxicology**; FF900 Environmental Tolerance of Plants
SEQUENCE CODE:	6T; 7Q; 7B; 0P; 0Q; 7G; CA; CR; EC; PL
BROADER TERM:	Hordeum; Poaceae; Cyperales; monocotyledons; angiosperms; Spermatophyta; **plants**
CONTROLLED TERM:	acid phosphatase; alkaline phosphatase; aluminium; antioxidants; barley; **enzyme activity**; **enzyme inhibitors**; esterases; glucosidases; imbibition; in vitro culture; metal tolerance; peroxidase; pH; polypeptides; seeds; stress; stress response; superoxide dismutase; toxicity
CAS REGISTRY NUMBER:	9001-77-8; 9001-78-9; 7429-90-5; 903-99-0; 9054-89-1
ORGANISM NAME:	Hordeum vulgare

L114 ANSWER 5 OF 29 CABA COPYRIGHT 2005 CABI on STN

ACCESSION NUMBER:	1999:114670 CABA
DOCUMENT NUMBER:	19992301712
TITLE:	Control of propanil-resistant barnyardgrass (Echinochloa **crus**-galli) in rice (Oryza sativa) with carbaryl/propanil mixtures
AUTHOR:	Daou, H.; Talbert, R. E.
CORPORATE SOURCE:	Department of Agronomy, University of Arkansas, Fayetteville 72701, USA.
SOURCE:	Weed Technology, (1999) Vol. 13, No. 1, pp. 65-70. 18 ref. ISSN: 0890-037X
DOCUMENT TYPE:	Journal
LANGUAGE:	English
ENTRY DATE:	Entered STN: 19990811 Last Updated on STN: 19990811

ABSTRACT:
Propanil and carbaryl mixtures, propanil formulated with carbaryl, the package mixture of propanil plus molinate (alone and plus pendimethalin), propanil plus quinclorac and propanil plus pendimethalin were evaluated in field experiments for control of propanil-resistant and -susceptible E. crus-galli in 1995 and 1996 in Arkansas, USA. Propanil alone at 3.3 kg a.i./ha did not control propanil-resistant E. crus-galli when applied at the 2-leaf stage and repeated at the 4-leaf stage. Propanil at 3.3 kg/ha with carbaryl at 0.1 to 0.3 kg a.i./ha controlled propanil-resistant E. crus-galli by at least 90% when applied at the 2-leaf stage, with no rice yield reduction. Applications repeated at the 4-leaf stage also controlled propanil-resistant E. crus-galli, but rice injury was 66% with 0.3 kg/ha carbaryl in 1 of 2 years, and rice yield was **reduced. Resistant** E. crus-galli control with the commercial formulation of propanil plus carbaryl and propanil plus molinate was lower with a single application than with repeat applications. Propanil plus

quinclorac, propanil plus pendimethalin and propanil plus molinate plus pendimethalin controlled resistant E. crus-galli with one application at the 2-leaf stage.

CLASSIFICATION: HH400 Pesticides and Drugs (General); FF100 Plant Production; FF500 Weeds and Noxious Plants; **HH410 Pesticide and Drug Resistance**; FF800 Plant Toxicology
SEQUENCE CODE: CR; CA; PE; EC; 0W; 0E; 7U
GEOGRAPHIC TERM: Arkansas; USA
BROADER TERM: Echinochloa; Poaceae; Cyperales; monocotyledons; angiosperms; Spermatophyta; **plants**; Oryza; West South Central States of USA; Southern States of USA; USA; North America; America; Developed Countries; OECD Countries; Delta States of USA
CONTROLLED TERM: rice; carbaryl; weed control; molinate; pendimethalin; propanil; quinclorac; herbicides; chemical control; **herbicide resistant** weeds; herbicide mixtures; phytotoxicity; weeds; insecticides; crop plants as weeds; volunteer plants; cereals; nontarget effects; pesticides; agricultural entomology
CAS REGISTRY NUMBER: 63-25-2; 2212-67-1; 40487-42-1; 709-98-8
ORGANISM NAME: Echinochloa crus-galli; Oryza sativa; Oryza

L114 ANSWER 6 OF 29 CABA COPYRIGHT 2005 CABI on STN
ACCESSION NUMBER: 2000:41368 CABA
DOCUMENT NUMBER: 20001004242
TITLE: Potential for exploitation of ATP-binding cassette (ABC) transporters in biological control
AUTHOR: Sorbo, G. del; Ruocco, M.; Lorito, M.; Scala, F.; Zoina, A.; Andrade, A. C.; Waard, M. A. de; del Sorbo, G.; de Waard, M. A.; Duffy, B. [EDITOR]; Rosenberger, U. [EDITOR]; Defago, G. [EDITOR]
CORPORATE SOURCE: Dipartimento di Arboricultura, Botanica e Patologia Vegetale, Sezione Patologia Vegetale, University of Naples "Federico II", 80055 Portici, Naples, Italy.
SOURCE: Bulletin OILB/SROP, (1998) Vol. 21, No. 9, pp. 241-246. 14 ref.IOBC/WPRS
Price: Conference paper; Journal article
Meeting Info.: Molecular approaches in biological control. Delemont, Switzerland, 15-18 September, 1997.
ISBN: 92-9067-103-3
DOCUMENT TYPE: Journal
LANGUAGE: English
ENTRY DATE: Entered STN: 20000414
Last Updated on STN: 20000414

ABSTRACT:
ATP-binding cassette (ABC) transporters are membrane glycoproteins which utilize the energy derived from hydrolysis of ATP to drive the transport of endogenous metabolites and toxic xenobiotics through biological membranes. Their basic structure includes an hydrophilic moiety with a conserved domain and a moiety with several stretches of hydrophobic amino acids which are supposed to constitute transmembrane domains. Overexpression of some ABC transporters determines simultaneous resistance to many chemically unrelated compounds whereas disruption of genes encoding ABC transporters is associated with increased sensitivity to the same compounds. The mechanism of resistance conferred by overexpression of ABC transporters relies on increased energy-dependent efflux which, in turn, causes decreased intracellular

accumulation of toxicants. Recently, the ABC transporter-encoding genes atrA and atrB from Aspergillus nidulans and bc-atrA from the plant pathogen Botrytis cinerea were isolated. It was found that transcription of these genes is strongly enhanced within minutes following treatment with several antibiotics, plant defence compounds and fungicides. It is hypothesized that some ABC transporters may have a role in secretion of compounds with antibiotic activity in soil. To test this hypothesis the cDNA of atrB was put in a yeast mutant disrupted in PDR5, a gene that encodes a well characterized ABC transporter conferring drug hypersensitivity upon disruption, under the control of the galactose-inducible GAL10 promoter. It was demonstrated that in permissive conditions transcription of atrB is induced and drug hypersensitivity partially restored. Currently, the possibility that the transporter encoded by atrB may transport compounds involved in antagonistic interactions of soil micro-organisms is being tested. Based on these findings it is hypothesized that ABC transporters may find applications in plant disease control. One possibility is the use of selective **inhibitors** of **ABC** ***transporters*** to enhance activity of natural or synthetic fungitoxic compounds. The inhibitory effect of some fungicides (e.g., propiconazole and tebuconazole) on germination of B. cinerea conidia was strongly enhanced by the presence of sub-lethal doses of some **inhibitors** of **ABC** ***transporters.*** Another possibility is the use of biocontrol strains which overexpress selected ABC transporters for possible use in integrated pest management in combination with sub-lethal doses of toxicants. These strains may also display enhanced ecological fitness and biocontrol activity in environments characterized by intensive cultivation.

CLASSIFICATION:	HH100 Biological Control; WW000 Biotechnology (General) (Revised June 2002); FF610 Viral, Bacterial and Fungal Diseases of Plants (New March 2000); ZZ394 Biochemistry and Physiology of Microorganisms (New March 2000); ZZ395 Genetics and Molecular Biology of Microorganisms (New March 2000); HH400 Pesticides and Drugs (General)
SEQUENCE CODE:	CA; OG; PE; EC; 7B; ZC; 0M; 7E
BROADER TERM:	Aspergillus; Deuteromycotina; Eumycota; fungi; Botrytis
CONTROLLED TERM:	biological control; biological control agents; binding proteins; protein transport; ATP; membranes; molecular genetics; gene expression; antibiotics; mutants; antagonism; inhibition; pesticide resistance; fungicide tolerance; glycoproteins; hypersensitivity; microorganisms; propiconazole; tebuconazole; transcription; biochemical transport; physiology; control; **plant pathology**
CAS REGISTRY NUMBER:	56-65-5; 60207-90-1; 107534-96-3
ORGANISM NAME:	Aspergillus nidulans; Botrytis cinerea

L114 ANSWER 7 OF 29 CABA COPYRIGHT 2005 CABI on STN

ACCESSION NUMBER:	1998:134286 CABA
DOCUMENT NUMBER:	19980708669
TITLE:	Cadmium suppresses phosphate level and **inhibits** the activity of **phosphatases** in growing rice seedlings
AUTHOR:	Shah, K.; Dubey, R. S.
CORPORATE SOURCE:	Department of Biochemistry, Faculty of Science, Banaras Hindu University, Varanasi, India.
SOURCE:	Journal of Agronomy and Crop Science, (1998) Vol. 180, No. 4, pp. 223-231. 30 ref. ISSN: 0931-2250
DOCUMENT TYPE:	Journal

LANGUAGE: English
SUMMARY LANGUAGE: German
ENTRY DATE: Entered STN: 19980910
Last Updated on STN: 19980910

ABSTRACT:
The **effect** of increasing concentration of Cd in situ on the metabolic status of total phosphate and the activity of its metabolizing enzymes acid phosphatase, alkaline phosphatase and inorganic pyrophosphatases were examined in growing rice (Oryza sativa) seedlings. Some 500 [micro]M Cd in the culture medium caused 68-77% decline in phosphate content in shoots and 56-66% decline in roots in 20-day-old seedlings of rice cv. Ratna and Jaya. In situ Cd levels of 100 [micro]M and 500 [micro]M led to a significant decline in the activities of the three phosphorolytic enzymes studied. **Inhibition** in the acid ***phosphatase*** activity was greater in roots than in shoots. With 500 [micro]M Cd 62-88% **inhibition** in acid **phosphatase** activity was observed in roots. A similar Cd level caused 28-31% inhibition in shoots in 20-day-old seedlings, whereas inorganic pyrophosphatase activity was inhibited by 27-53% in roots and nearly 50% in shoots. Under in vitro conditions more than 200 [micro]M Cd (NO3)2 in the reaction medium significantly inhibited the activities of the phosphorolytic enzymes. Alkaline phosphatase appeared to be more tolerant than acid phosphatase at lower (20-100 [micro]M) concentrations whereas the activity of inorganic pyrophosphatase was completely lost with 2 mM Cd. Isoenzymic studies revealed three acid phosphatase isoenzymes with RF values of 0.18, 0.24 and 0.40 in both roots and shoots. The band intensities decreased under Cd treatments. It is concluded that activities of phosphatases are suppressed due to Cd in growing seedlings.

CLASSIFICATION: FF800 **Plant Toxicology**
SEQUENCE CODE: CR; CA; PL; EC; 0Q; 7U; 7Q
BROADER TERM: Oryza; Poaceae; Cyperales; monocotyledons; angiosperms; Spermatophyta; **plants**
CONTROLLED TERM: phosphoric monoester hydrolases; acid phosphatase; alkaline phosphatase; cadmium; phytotoxicity; inorganic pyrophosphatase; phosphate; **enzyme activity**; rice; seedlings; cultivars; **enzyme inhibitors**; enzymes; pyrophosphatases; roots; shoots
CAS REGISTRY NUMBER: 9001-77-8; 9001-78-9; 7440-43-9
ORGANISM NAME: Oryza sativa; Oryza

L114 ANSWER 8 OF 29 CABA COPYRIGHT 2005 CABI on STN
ACCESSION NUMBER: 1998:32457 CABA
DOCUMENT NUMBER: 19981001866
TITLE: Significance of ABC transporters in fungicide sensitivity and resistance
AUTHOR: Waard, M. A. de; De Waard, M. A.
CORPORATE SOURCE: Department of Phytopathology,Wageningen Agricultural University, PO Box 8025, 6700 EE Wageningen, Netherlands.
SOURCE: Pesticide Science, (1997) Vol. 51, No. 3, pp. 271-275. 35 ref.
Price: Conference paper; Journal article
Meeting Info.: Resistance '97. Integrated approach to combating resistance, held in Harpenden, UK, on 14-16 April, 1997.
ISSN: 0031-613X
DOCUMENT TYPE: Journal
LANGUAGE: English
ENTRY DATE: Entered STN: 19980309
Last Updated on STN: 19980309

ABSTRACT:
ATP-binding cassette (ABC) transporters are members of a protein superfamily which can be responsible for the efflux of drugs from cells of target organisms. In this way, the transporters may provide a mechanism of protection against cytotoxic drugs. In laboratory-generated mutants of fungi, over-production of ABC transporters can cause multi-drug tolerance of azoles and other non-related toxicants. The impact of this mechanism of tolerance in field populations with decreased sensitivity to azoles remains to be established. **Inhibitors** of **ABC transporter** activity may synergize activity of azoles to populations of both sensitive and azole-tolerant pathogens. It is suggested that the natural function of ABC transporters in plant pathogenic fungi may relate to transport of plant-defence compounds or fungal pathogenicity factors. It is concluded that ***inhibitors*** of **ABC transporter** activity may act as disease control agents with an indirect mode of action.

CLASSIFICATION: FF600 Pests, Pathogens and Biogenic Diseases of Plants (Discontinued March 2000); HH400 Pesticides and Drugs (General); HH410 Pesticide and Drug Resistance
SEQUENCE CODE: CA; PE; EC; OM
CONTROLLED TERM: chemical control; plant disease control; fungicides; azoles; fungicide tolerance; plant pathogens; plant pathogenic fungi; **plant pathology**
SUPPLEMENTARY TERM: Resistance '97. Integrated approach to combating resistance

L114 ANSWER 9 OF 29 CABA COPYRIGHT 2005 CABI on STN
ACCESSION NUMBER: 95:42908 CABA
DOCUMENT NUMBER: 19952300411
TITLE: **Malathion** antagonizes metabolism-based chlorsulfuron resistance in Lolium rigidum
AUTHOR: Christopher, J. T.; Preston, C.; Powles, S. B.
CORPORATE SOURCE: Department of Crop Protection, Waite Agricultural Research Institute, University of Adelaide, P.B.M.1, Glen Osmond, SA 5064, Australia.
SOURCE: Pesticide Biochemistry and Physiology, (1994) Vol. 49, No. 3, pp. 172-182. 30 ref.
ISSN: 0048-3575
DOCUMENT TYPE: Journal
LANGUAGE: English
ENTRY DATE: Entered STN: 19950223
Last Updated on STN: 19950223

ABSTRACT:
A biotype of Lolium rigidum Gaud. (SLR31) is **resistant** to the sulfonylurea **herbicide** chlorsulfuron, despite having a herbicide-sensitive target site, acetolactate synthase. This biotype is able to metabolize the herbicide at a faster rate than a susceptible biotype. Seedlings of this biotype treated with chlorsulfuron in combination with the organophosphate insecticide malathion exhibited greatly increased mortality and reduced dry weight compared to seedlings treated with chlorsulfuron alone. The chlorsulfuron LD50 dose for **resistant** biotype SLR31 **decreased** from 293.5 g ai/ha in the absence of malathion to 84.6 g in the presence of 1000 g malathion. The LD50 for a susceptible biotype was also reduced from 7.6 g in the absence of malathion to 0.9 g. Excised seedlings of the resistant biotype metabolized [phenyl-U-14C]chlorsulfuron in the culm tissue nearest the meristem faster than the susceptible biotype. However, when the herbicide was given in combination with malathion, metabolism was dramatically reduced in both biotypes. In seedlings of the resistant biotype given [phenyl-U-14C]chlorsulfuron alone 83.5 [plusmn]2.3% of the herbicide taken into the culms

tissue was metabolized after 9 h. However, when the herbicide was given in combination with 70 [micro]M malathion, only 13.0 [plusmn] 2.2% [phenyl-U-14C]chlorsulfuron was metabolized after 9 h. Thus, malathion increases chlorsulfuron toxicity for L. rigidum by inhibiting herbicide metabolism. As malathion has previously been shown to inhibit cytochrome P450-dependent monoxygenase-catalyzed primisulfuron metabolism by Zea mays microsomes, this result supports the hypothesis that chlorsulfuron metabolism in L. rigidum may be mediated by a cytochrome P450 isozyme. Other cytochrome P450 inhibitors, piperonylbutoxide and tetcyclacis, did not increase chlorsulfuron toxicity for either resistant or susceptible L. rigidum biotypes, while 1-aminobenzotriazole caused only a small increase in mortality and a small reduction in [14C]chlorsulfuron metabolism in the resistant biotype.

CLASSIFICATION: FF500 Weeds and Noxious Plants; HH400 Pesticides and Drugs (General); **HH410 Pesticide and Drug Resistance**; FF800 Plant Toxicology
SEQUENCE CODE: CA; CR; PL; PE; EC; 0W; 0E
BROADER TERM: Zea; Poaceae; Cyperales; monocotyledons; angiosperms; Spermatophyta; **plants**; Lolium
CONTROLLED TERM: malathion; herbicides; weed control; weeds; metabolism; chlorsulfuron; resistance; cytochrome P-450; mode of action; enzymes; degradation; growth rate; damage; maize; **herbicide resistant** weeds; ecology; biotypes; interactions; insecticides; tetcyclacis; pesticide mixtures; nontarget effects; mixtures; effects; pesticides; cereals; fodder plants; agricultural entomology
SUPPLEMENTARY TERM: primisulfuron
CAS REGISTRY NUMBER: 121-75-5; 64902-72-3; 77788-21-7
ORGANISM NAME: Zea mays; Lolium rigidum

L114 ANSWER 10 OF 29 CABA COPYRIGHT 2005 CABI on STN
ACCESSION NUMBER: 77:45556 CABA
DOCUMENT NUMBER: 19770758344
TITLE: Biochemical changes in stored potato tubers with different **rest** periods. 2. Influence of the storage temperature and isopropyl phenylcarbamates on enzyme activities
AUTHOR: Nowak, J.
CORPORATE SOURCE: Instytut Biologii Roslin, Akademia Rolniczo-Techniczej, Olsztyn, Poland.
SOURCE: Zeitschrift fur Pflanzenphysiologie, (1977) Vol. 81, No. 2, pp. 125-140. 24 ref.
Meeting Info.: Nowak, J. : Biochemical changes in stored potato tubers with different rest periods. 1. Influence of the storage temperature and isopropyl phenylcarbamates (IPC and CIPC) on protein changes.
DOCUMENT TYPE: Journal
LANGUAGE: English
ENTRY DATE: Entered STN: 19941101
Last Updated on STN: 19941101

ABSTRACT:
Ribonuclease, desoxyribonuclease, acid phosphatase, **apyrase**, alpha -amylase, peroxidase and phenol oxidase activities were investigated in the eyes and parenchyma of stored tubers of potato cv. (a) Baca and (b) Bem, as well as the **effect** of storage at 8-11 deg or 2-3 deg C and of Aaservo [IPC + CIPC] on enzyme activity. Most enzymes were more active, particularly during dormancy, in the tuber eyes of (b), with a shorter dormancy, than in the eyes of (a). Total enzyme activity increased from dormancy to sprouting, but

the activity of individual enzymes in the eyes and parenchyma varied at different periods of storage. IPC + CIPC inhibited the increase of most enzyme activity in the external parts of the tubers and in the ageing eyes. Storage at 2-3 deg increased activity of hydrolases and peroxidase during the early stages of storage.

CLASSIFICATION: SS210 Storage Problems and Pests of Non-food/Non-feed Plant Products
SEQUENCE CODE: CA; CR; HO; PE; 0Q
GEOGRAPHIC TERM: Poland
BROADER TERM: pesticides; carbanilate herbicides; herbicides; carbamate pesticides; Solanum; Solanaceae; Solanales; dicotyledons; angiosperms; Spermatophyta; **plants**; Central Europe; Europe
CONTROLLED TERM: potatoes; tubers; storage; eyes; parenchyma; enzymes; temperature; herbicides; propham; chlorpropham; transferases; RIBONUCLEASES; hydrolases; esterases; phosphoric monoester hydrolases; acid phosphatase; oxidoreductases; peroxidase; glycosidases; amylases
SUPPLEMENTARY TERM: tuber enzymes; alpha-amylase
CAS REGISTRY NUMBER: 122-42-9; 101-21-3; 9001-77-8; 903-99-0
ORGANISM NAME: Solanum tuberosum

L114 ANSWER 11 OF 29 CABA COPYRIGHT 2005 CABI on STN
ACCESSION NUMBER: 74:38345 CABA
DOCUMENT NUMBER: 19730713967
TITLE: **Effects** of protein-modifying **reagents** on an isoenzyme of potato **apyrase**
AUTHOR: Valenzuela, M. A.; Campo, G. del; Marin, E., Traverso-Cori, A.
CORPORATE SOURCE: Facultad de Ciencia Quimica, Universidad de Chile, Santiago.
SOURCE: Biochemical Journal, Molecular Aspects, (1973) Vol. 133, No. 4, pp. 755-763. 36 ref.
DOCUMENT TYPE: Journal
LANGUAGE: English
ENTRY DATE: Entered STN: 19941101
Last Updated on STN: 19941101

ABSTRACT:
The **effects** of the reagents suggested that tyrosyl residues were involved in the activity of the isoenzyme, but that thiol groups were not involved.

CLASSIFICATION: FF060 Plant Physiology and Biochemistry
SEQUENCE CODE: CA; CR; HO; 0Q
BROADER TERM: Solanum; Solanaceae; Solanales; dicotyledons; angiosperms; Spermatophyta; **plants**
CONTROLLED TERM: potatoes; hydrolases; esterases; phosphoric monoester hydrolases
SUPPLEMENTARY TERM: enzyme
ORGANISM NAME: Solanum tuberosum

L114 ANSWER 12 OF 29 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 1
ACCESSION NUMBER: 2003:848584 CAPLUS
DOCUMENT NUMBER: 140:89416

TITLE: Differential sensitivity of plant and yeast MRP (ABCC)-mediated organic **anion** transport processes towards sulfonylureas

AUTHOR(S): Forestier, Cyrille; Frangne, Nathalie; Eggmann, Thomas; Klein, Markus

CORPORATE SOURCE: Departement d'Ecophysiologie Vegetale et de Microbiologie, Laboratoire des Echanges Membranaires et Signalisation, Laboratoire des Echanges Membranaires et Signalisation, Direction des Sciences du Vivant, CEA Cadarache, UMR 163 CNRS-CEA, St Paul-lez-Durance, F-13108, Fr.

SOURCE: FEBS Letters (2003), 554(1-2), 23-29
CODEN: FEBLAL; ISSN: 0014-5793

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 30 Oct 2003

AB The role of ATP-binding cassette (ABC) proteins such as multidrug resistance-associated proteins (MRPs) is critical in drug resistance in cancer cells and in plant detoxification processes. Due to broad substrate spectra, specific modulators of these proteins are still lacking. Sulfonylureas such as glibenclamide are used to treat non-insulin-dependent diabetes since they bind to the sulfonylurea receptor. Glibenclamide also inhibits the cystic fibrosis transmembrane conductance regulator, p-glycoprotein in animals and guard cell ion channels in plants. To investigate whether this compound is a more general blocker of ABC transporters the sensitivity of ABC-type transport processes across the vacuolar membrane of plants and yeast towards glibenclamide was evaluated. Glibenclamide inhibits the ATP-dependent uptake of β-estradiol 17-(β-D-glucuronide), lucifer yellow CH, and (2',7'-bis-(2-carboxyethyl)-5-(and-6-)carboxyfluorescein). Transport of glutathione conjugates into plant but not into yeast vacuoles was drastically reduced by glibenclamide. Thus, irresp. of the homologies between plant, yeast and animal MRP transporters, specific features of plant vacuolar MRPs with regard to sensitivity towards sulfonylureas exist. Glibenclamide could be a useful tool to trap anionic fluorescent indicator dyes in the cytosol.

CC 6-1 (General Biochemistry)
Section cross-reference(s): 1, 10, 11, 13

ST glibenclamide sulfonylurea plant yeast animal MRP transporter; org anion transport **ATP binding cassette** MRP plant yeast

IT Transport proteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(ABC (**ATP-binding cassette**) transporters; differential sensitivity of plant and yeast MRP organic anion transport processes towards sulfonylureas)

IT Arabidopsis thaliana
Drug resistance
Embryophyta
Fluorescent dyes
Hordeum vulgare
Membrane, biological
Microsome
Protoplast and Spheroplast
Saccharomyces cerevisiae
Yeast
(differential sensitivity of plant and yeast MRP organic anion transport processes towards sulfonylureas)

REFERENCE COUNT: 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L114 ANSWER 13 OF 29 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:580949 CAPLUS
DOCUMENT NUMBER: 141:308978
TITLE: Significance of the sulfonylurea receptor (SUR) as the target of diflubenzuron in chitin synthesis inhibition in Drosophila melanogaster and Blattella germanica
AUTHOR(S): Abo-Elghar, Gamal E.; Fujiyoshi, Phillip; Matsumura, Fumio
CORPORATE SOURCE: Department of Environmental Toxicology and Department of Entomology, One Shields Avenue, University of California, Davis, CA, 95616, USA
SOURCE: Insect Biochemistry and Molecular Biology (2004), 34(8), 743-752
CODEN: IBMBES; ISSN: 0965-1748
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 21 Jul 2004
AB Diflubenzuron (DIMILIN) is a powerful insecticidal chemical which has been known for many years to inhibit chitin synthesis in vivo in insects and related arthropod species. However, its action mechanism has remained unresolved partly because of its inaction on any of the enzymes involved in chitin synthesis in vitro. Based on our previous work (diflubenzuron affects gamma-thioGTP stimulated Ca2+ transport in vitro in intracellular vesicles from the integument of the newly molted American cockroach, Periplaneta americana L. Insect Biochem. Mol. Biol. 24 (1994) 1009) showing that diflubenzuron inhibits Ca2+ uptake by vesicles obtained from the integument of American cockroach, Periplaneta americana (L.), in vitro, we tested the hypothesis that the action site of diflubenzuron is an ABC (ATP binding cassette) transporter, probably a sulfonylurea-sensitive transporter. Glibenclamide, one of the most commonly used sulfonylureas for type II diabetes treatment, was the pos. control. When given to immature insects, glibenclamide clearly caused toxicity, with symptoms indicating molting abnormality comparable to diflubenzuron. Its LD50 (0.472 μg/nymph) was approx. 2.8 times the value obtained for diflubenzuron (0.17 μg/nymph, topical) in German cockroach, Blattella germanica (L.). However, in terms of the inhibitory activities on chitin synthesis, in isolated integuments glibenclamide showed an identical potency to diflubenzuron in B. germanica nymphs. A competitive binding assay with [3H]-glibenclamide and unlabeled diflubenzuron clearly established that the latter is capable of competitively displacing the former radioligand. The KD values observed for vesicles prepared from fruit fly larvae, Drosophila melanogaster M., were 44.9 nM for glibenclamide and 65.0 nM for diflubenzuron, resp. Furthermore, glibenclamide was found to affect Ca2+ uptake by isolated cuticular vesicles from B. germanica in a manner very similar to diflubenzuron. These results support our conclusion that the sulfonylurea receptor (SUR) is the target of diflubenzuron in inhibition of chitin synthesis in these two insect species.
CC 5-4 (Agrochemical Bioregulators)
Section cross-reference(s): 12
IT Transport proteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ATP binding cassette**; sulfonylurea receptor (SUR) as target of diflubenzuron in chitin synthesis **inhibition** in Drosophila melanogaster and Blattella germanica)
IT 35367-38-5, Diflubenzuron
RL: **AGR (Agricultural use)**; BSU (Biological study,

unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(sulfonylurea receptor (SUR) as target of diflubenzuron in chitin synthesis inhibition in Drosophila melanogaster and Blattella germanica)

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L114 ANSWER 14 OF 29 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:23438 CAPLUS
DOCUMENT NUMBER: 138:68713
TITLE: Modulating resistance of tumor and pathogen cells to foreign compounds by manipulation of ATP gradients via regulation of ABC transporters and ecto-phosphatases
INVENTOR(S): Windsor, J. Brian; Roux, Stan J.; Lloyd, Alan M.
PATENT ASSIGNEE(S): University of Texas, USA
SOURCE: U.S. Pat. Appl. Publ., 41 pp., Cont.-in-part of U.S. Ser. No. 261,825.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003008369	A1	20030109	US 2002-134019	20020425
US 2002006901	A1	20020117	US 1999-244792	19990205
WO 2003091403	A2	20031106	WO 2003-US12780	20030425
WO 2003091403	A3	20041104		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:
US 1999-244792 A2 19990205
US 1999-261825 A2 19990303
US 2002-134019 A1 20020425

ED Entered STN: 10 Jan 2003

AB The present invention relates to methods for modulating the growth of tumor and pathogen cells and the resistance of cells to foreign compds., i.e. drugs, antibiotics, etc. by altering the ATP gradient across biol. membranes. The altering of the ATP gradient across biol. membranes is achieved through the manipulation of ecto-phosphatase (e.g., human apyrase) activity and ABC transporter mol. (e.g., Arabidopsis AtPGP-1) activity which may also be useful to confer herbicide resistance to plants, confer antibiotic resistance to bacteria, confer drug resistance to yeast cells, or to reduce resistance in cells to facilitate chemotherapeutic treatments, and to reduce resistance in bacteria and yeast. The present invention is also directed to the methods for identifying ecto-phosphatase inhibitors and uses thereof. Nineteen ecto-phosphatase inhibitory mols. are provided which are useful in reversing multi-drug resistance in Arabidopsis and yeast.

IC ICM C12N009-12
ICS C12N009-00

INCL 435194000; 435183000
CC 6-1 (General Biochemistry)
Section cross-reference(s): 1, 5, 7, 10, 11, 13
IT 61-32-5, Methicillin
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**inhibiting** growth of cells resistant to; modulating resistance of tumor and pathogen cells to foreign compds. by manipulation of ATP gradients via regulation of **ABC transporters** and ecto-phosphatases)
IT 41481-51-0 139963-64-7 154201-55-5 168832-50-6 171248-07-0
291536-79-3 291536-80-6 291536-81-7 291536-82-8 291536-84-0
291536-85-1 291536-86-2 291536-87-3 291536-88-4 291536-89-5
291536-90-8 291536-91-9 291536-92-0 313493-42-4
RL: **AGR (Agricultural use)**; PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(modulating resistance of tumor and pathogen cells to foreign compds. by manipulation of ATP gradients via regulation of ABC transporters and ecto-phosphatases)

L114 ANSWER 15 OF 29 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:165299 CAPLUS
DOCUMENT NUMBER: 141:48685
TITLE: Development and applications of a yeast-based **bioassay** for the mycotoxin zearalenone
AUTHOR(S): Mitterbauer, R.; Bachmann, H.; Poppenberger, B.; Safaie, N.; Adam, G.
CORPORATE SOURCE: Center of Applied Genetics, BOKU-University of Natural Resources and Applied Life Sciences, Vienna, A-1190, Austria
SOURCE: Mycotoxin Research (2003), 19(1), 69-72
CODEN: MYREET; ISSN: 0178-7888
PUBLISHER: HWS Mycotoxin Research
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 01 Mar 2004
AB Zearalenone (ZON) is a non-steroidal estrogenic mycotoxin produced by plant pathogenic species of Fusarium. As a consequence of infection with F. culmorum and F. graminearum, ZON can be found in cereals and derived food products. Several countries have established monitoring programs and guidelines for ZON levels in grain intended for human consumption and animal feed. The authors have developed a sensitive yeast bioassay allowing detection of the estrogenic activity of ZON in cereal exts. without requiring further clean up steps. The high sensitivity makes this assay suitable for low cost monitoring of contamination of small grain cereals with estrogenic Fusarium mycotoxins, but also attractive as a tool, for basic research. The authors have successfully used yeast indicator strains to screen for mutants of F. graminearum which no longer produce detectable amts. of ZON, and have identified a plant cDNA encoding a ZON detoxification enzyme.
CC 4-1 (Toxicology)
Section cross-reference(s): 10, 11, 17
ST yeast based **bioassay** zearalenone; mycotoxin yeast **bioassay**
IT Gene, microbial
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ABC transporter**; yeast-based **bioassay** for the mycotoxin zearalenone)
IT Gene, microbial
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(PDR5; yeast-based **bioassay** for the mycotoxin zearalenone)

IT Gene, microbial
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(Snq2; yeast-based **bioassay** for the mycotoxin zearalenone)
IT Gene, microbial
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(URA3; yeast-based **bioassay** for the mycotoxin zearalenone)
IT **Embryophyta**
(cDNA, detoxication enzymes; yeast-based **bioassay** for the mycotoxin zearalenone)
IT Enzymes, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(detoxifying, cDNA, plant; yeast-based **bioassay** for the mycotoxin zearalenone)
IT Estrogen receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(human, binding **assay**; yeast-based **bioassay** for the mycotoxin zearalenone)
IT cDNA
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(plant, detoxication enzymes; yeast-based **bioassay** for the mycotoxin zearalenone)
IT **Bioassay**
Cereal (grain)
Feed contamination
Food contamination
Fusarium culmorum
Fusarium graminearum
Human
Phenotypes
Saccharomyces cerevisiae
Yeast
(yeast-based **bioassay** for the mycotoxin zearalenone)
IT Mycotoxins
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(yeast-based **bioassay** for the mycotoxin zearalenone)
IT 17924-92-4, Zearalenone
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(yeast-based **bioassay** for the mycotoxin zearalenone)
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L114 ANSWER 16 OF 29 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:814331 CAPLUS
DOCUMENT NUMBER: 137:291820
TITLE: **Inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants
INVENTOR(S): Martinoia, Enrico; Klein, Markus; Schulz, Burkhard; Forestier, Cyrille; Mueller-Roeber, Bernd
PATENT ASSIGNEE(S): Max-Planck-Gesellschaft zur Foerderung der Wissenschaften e.V., Germany; Commissariat a l'Energie Atomique (CEA)
SOURCE: PCT Int. Appl., 111 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002083911	A1	20021024	WO 2001-EP4248	20010412

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: WO 2001-EP4248 20010412

ED Entered STN: 25 Oct 2002

AB Described is a method for producing transgenic and mutant plants having an increased tolerance to drought stress due to a reduced activity of an ABC transporter MRP-5 (multidrug resistance associated protein 5) which is expressed in guard cells. This reduction of ABC transporter activity can be achieved by introducing a suitable nucleic acid mol. into the plant genome, for example, for inducing an antisense, co-suppression or like effect or for inactivating the gene encoding the ABC transporter by T-DNA or transposon insertion. Furthermore described are transgenic and mutant plants obtainable by the above-mentioned method as well as transgenic plant cells and propagation and harvestable material and corresponding uses of suitable nucleic acid mols. Also described is a method for producing transgenic and mutant plants having an increased transpiration due to an increased activity of an ABC transporter which is expressed in guard cells. This increase of ABC transporter activity can be achieved by overexpressing the ABC transporter. Furthermore described are transgenic and mutant plants obtainable by the above-mentioned method as well as transgenic plant cells and propagation and harvestable material and corresponding uses of suitable nucleic acid mols. MRP5 encodes a 167 kDa protein and exhibits low glutathione conjugate and glucuronide conjugate transport activity. Promotor-β-glucuronidase fusion constructs showed that MRP5 is expressed mainly in the vascular bundle and in the epidermis, especially guard cells. Using reverse genetics a plant with a T-DNA insertion in MRP5 (mrp5-1) was identified. Mrp5-1 exhibited decreased root growth and increased lateral root formation. Auxin levels in the roots of mrp5-1 plants were increased. This observation may indicate that MRP5 works as an auxin conjugate transporter or that mutant plants are affected in ion uptake, which may lead to changes in auxin concns. Expts. on epidermal strips showed that in contrast to wild type, the sulfonylurea gilbenclamide had no effect on stomatal opening in mrp5-1 plants. This result strongly suggests that MRP5 may also function as an ion channel regulator.

IC ICM C12N015-82
ICS C12N015-29; C12N015-11; C07K014-415; A01H005-00; A01H005-10

CC 11-3 (Plant Biochemistry)
Section cross-reference(s): 3, 6

IT Transport proteins
RL: **AGR (Agricultural use)**; BSU (Biological study, unclassified); BIOL (Biological study); USES (Uses)
(ABC (**ATP-binding cassette**) transporters, MRP-5 (multidrug resistance associated protein 5); **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Chromosome
(Arabidopsis thaliana 1, MRP-5 gene mapping to; **inhibition** of

Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Auxins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MRP-5 as transporter of; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Sulfonylureas
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MRP-5 **inhibition** resulting in reduced opening of stoma following treatment with; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Flower
Leaf
Root
Seed
Seedling
(MRP-5 mRNA in; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Guard cell
(MRP-5 protein synthesis in; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT mRNA
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MRP-5; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Genetic methods
(RNA interference, for **inhibition** of MRP-5 gene expression; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT DNA
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(T, mutagenesis of MRP-5 gene by; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Protein motifs
(Walker box A and B, of MRP-5 protein; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Potassium channel
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(as inducer of stomatal closure following exposure to light; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Genetic methods
(cosuppression of MRP-5 gene expression; **inhibition** of

Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT cDNA
RL: **AGR (Agricultural use)**; BSU (Biological study, unclassified); BIOL (Biological study); USES (Uses)
(for **ABC transporter**; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Promoter (genetic element)
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(for MRP-5 gene; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Ribozymes
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(for **inhibition** of MRP-5 gene expression; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Mutagenesis
(for **inhibition** of MRP-5; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Gene targeting
(gene knock-out, MRP-5 gene; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Arabidopsis thaliana
Biological transport
Embryophyta
Genetic engineering
Plant cell
Transpiration (plant)
(**inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Antibodies and Immunoglobulins
RL: **AGR (Agricultural use)**; ARG (Analytical reagent use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(monoclonal, to MRP-5 protein; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Molecular cloning
(of **ABC transporter** cDNA; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

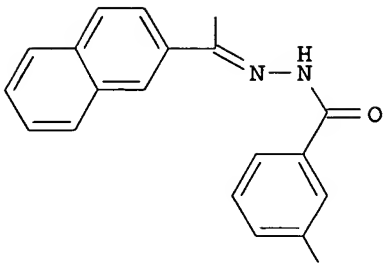
IT Genetic mapping
(of MRP-5 gene, to Arabidopsis thaliana chromosome 1; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)

IT Leaf
(stoma, MRP-5 **inhibition** resulting in reduced opening of; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)
IT Light
(stomatal closure following exposure to; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)
IT Antisense DNA
RL: **AGR (Agricultural use)**; BIOL (Biological study); USES (Uses)
(to MRP-5 gene; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)
IT Antibodies and Immunoglobulins
RL: **AGR (Agricultural use)**; ARG (Analytical reagent use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(to MRP-5 protein; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)
IT Mutagenesis
(transposon, of MRP-5; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)
IT Stress, plant
(water deficiency; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)
IT 64-77-7, Tolbutamide 10238-21-8, Glibenclamide
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MRP-5 **inhibition** resulting in reduced opening of stoma following treatment with; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)
IT 1806-98-0
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MRP-5 protein in transport of; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)
IT 475-31-0 481-96-9, Estradiol-3-sulfate 96400-44-1
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MRP-5 protein transport of estradiol-17-(β-D-glucuronide regulated by; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)
IT 89544-10-5, RP 49356 94470-67-4, Cromakalim
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(as inducer of stomatal closure following exposure to light; **inhibition** of Arabidopsis thaliana **ATP-binding cassette** transporter MRP-5 for improved drought tolerance and transpiration regulation in transgenic plants)
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

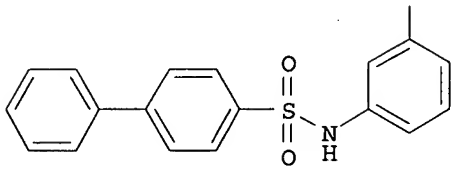
L114 ANSWER 17 OF 29 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:185280 CAPLUS
DOCUMENT NUMBER: 136:244034
TITLE: Method for increasing the effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities
INVENTOR(S): Windsor, J. Brian; Roux, Stan J.; Lloyd, Alan M.
PATENT ASSIGNEE(S): Board of Regents, the University of Texas System, USA
SOURCE: PCT Int. Appl., 65 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2002020726	A2	20020314	WO 2001-US28242		20010907
WO 2002020726	A3	20020606			
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM					
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
AU 2001090710	A5	20020322	AU 2001-90710		20010907
US 2002077365	A1	20020620	US 2001-949268		20010907
PRIORITY APPLN. INFO.:			US 2000-231088P	P	20000908
			WO 2001-US28242	W	20010907

ED Entered STN: 15 Mar 2002
GI



I



II

AB The present invention relates to methods for decreasing the resistance of microbial strains to antiinfectives such an antibiotics and antifungals by altering the ATP gradient across biol. membranes. The altering of the ATP gradient across biol. membranes is achieved through the inhibition of ecto-phosphatase activity and/or ABC transporter mol. activity which may be useful to reduce resistance in bacteria and yeast to aid in the treatment of certain infections and disease and to lower the concentration of antiinfectives necessary to inhibit the growth of microbial strains. Apyrase inhibitor I increased the growth inhibitory effect of the fungicide chlorothalonil by over 50%. Surflan was an equally effective weed killer against Arabidopsis thaliana at a five-fold less concentration in the presence of II.

IC ICM C12N

CC 9-12 (Biochemical Methods)
Section cross-reference(s): 1, 5, 7, 10, 11

ST antiinfective enhancement **inhibition** ectophosphatase **ABC transporter**; ATP gradient biol membrane antibiotic antifungal effectiveness; yeast bacteria resistance ectophosphatase **ABC transporter**; chlorothalonil fungicide enhancement apyrase **inhibitor**; surflan herbicide adjuvant apyrase **inhibitor**

IT Transport proteins
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)
(ABC (**ATP-binding cassette**) transporters; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT Gene, plant
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); BIOL (Biological study); PREP (Preparation)
(AtPGP-1; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT Combinatorial library
(DIVERSet format F, high throughput screening for apyrase

inhibitors; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT P-glycoproteins
RL: ADV (Adverse effect, including toxicity); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); BIOL (Biological study); PREP (Preparation)
(MDR1; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT Agrochemical formulations
(adjuvants; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT Fungicides
(agrochem.; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT Membrane, biological
(altering ATP gradient across; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT **Plant cell**
(as target cell; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT Infection
(bacterial; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT High throughput screening
(drug, for apyrase **inhibitors**; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT Biological transport
(efflux; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT Gene, plant
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); BIOL (Biological study); PREP (Preparation)
(for apyrase; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT Drug screening
(high throughput, for apyrase **inhibitors**; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT Anti-infective agents
(medical; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT Acaricides
Algicides
Animal
Anti-infective agents
Antibacterial agents
Antibiotic resistance
Antibiotics
Antimicrobial agents

Arabidopsis thaliana
Bactericide resistance
Drug delivery systems
Drug resistance
Embryophyta
Eubacteria
Fungicide resistance
Fungicides
Herbicide resistance
Herbicides
Human
Insecticides
Mammalia
Multidrug resistance
Nematocides
Pesticides
Pisum sativum
Saccharomyces cerevisiae
Yeast
(method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT Multidrug resistance proteins
RL: ADV (Adverse effect, including toxicity); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); BIOL (Biological study); PREP (Preparation)
(method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT Pesticides
(toxicity; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT Infection
(yeast; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT 56-65-5, 5'-ATP, biological studies
RL: BSU (Biological study, unclassified); CUS (Combinatorial use); BIOL (Biological study); CMBI (Combinatorial study); USES (Uses)
(altering gradient of, across biol. membrane; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT 41481-51-0 139963-64-7 154201-55-5 168832-50-6 171248-07-0
291536-79-3 291536-81-7 291536-82-8 291536-84-0 291536-86-2
291536-87-3 291536-88-4 291536-89-5 291536-90-8 291536-91-9
313493-42-4 403806-37-1
RL: BSU (Biological study, unclassified); CST (Combinatorial study, unclassified); BIOL (Biological study); CMBI (Combinatorial study)
(as apyrase **inhibitor**; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT **9000-95-7**, Apyrase
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); CUS (Combinatorial use); BIOL (Biological study); CMBI (Combinatorial study); USES (Uses)
(ecto-; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT 9000-83-3, ATPase

RL: BSU (Biological study, unclassified); BIOL (Biological study)
inhibition of, of ectophosphatase; method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT 19044-88-3, Surflan 40487-42-1, Pendimethalin
RL: **AGR (Agricultural use)**; BSU (Biological study, unclassified); BIOL (Biological study); USES (Uses)
(method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT 291536-80-6 291536-85-1
RL: **AGR (Agricultural use)**; DMA (Drug mechanism of action); BIOL (Biological study); USES (Uses)
(method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT 145-63-1, Suramin
RL: **AGR (Agricultural use)**; DMA (Drug mechanism of action); PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT 66-81-9, Cycloheximide 2365-40-4, N6-(2-Isopentenyl)adenine 3768-14-7, α,β-Methyleneadenosine 5'-diphosphate 28380-24-7, Nigericin
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

IT 1897-45-6, Chlorothalonil
RL: BSU (Biological study, unclassified); PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(method for increasing effectiveness of antiinfective agents by **inhibiting** ecto-phosphatase and/or **ABC transporter** activities)

L114 ANSWER 18 OF 29 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:833490 CAPLUS
DOCUMENT NUMBER: 137:306061
TITLE: Pesticidal and herbicidal activity through modulation of animal and plant cell membrane transport
INVENTOR(S): Windsor, J. Brian; Roux, Stan J.; Lloyd, Alan M.
PATENT ASSIGNEE(S): Board of Regents, The University of Texas System, USA
SOURCE: U.S. Pat. Appl. Publ., 41 pp., Cont.-in-part of U. S. Ser. No. 244,791.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 2002160915	A1	20021031	US 2001-793336		20010226
US 6448472	B1	20020910	US 1999-244791		19990205
PRIORITY APPLN. INFO.:			US 1999-244791	A2	19990205
			US 2000-185299P	P	20000228

ED Entered STN: 01 Nov 2002
AB The present invention relates to the modulation of pesticidal and herbicidal activity by treatment of a membrane transport system in a cell.

This entails modifying the extra-cellular phosphatases found in the membranes of these cells. By modifying the ATP gradient across the biol. membrane of a target plant, bacteria, insect or mammalian cell via inhibiting one or more extra-cellular phosphatases, it is possible to alter the sensitivity to a pesticide or herbicide. The method also comprises inhibiting an ABC transporter in the target cell. The method can also be used for identifying chems. with pesticidal activity.

IC ICM A01N025-00
INCL 504116100
CC 5-4 (Agrochemical Bioregulators)
ST pesticidal herbicidal activity modulation animal plant plasma membrane transport; pesticide herbicide ectophosphatase **ABC transporter inhibition**
IT Transport proteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(ABC (**ATP-binding cassette**) transporters; enhancement of pesticidal and herbicidal activity by altering the ATP gradient across biol. membranes and **inhibiting** an **ABC transporter**)
IT 41481-51-0 139963-64-7 154201-55-5 168832-50-6 171248-07-0
291536-79-3 291536-80-6 291536-81-7 291536-82-8 291536-83-9
291536-84-0 291536-86-2 291536-87-3 291536-88-4 291536-89-5
291536-90-8 291536-91-9 291536-92-0 358622-53-4
RL: **AGR (Agricultural use)**; BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(ectophosphatase inhibitor which enhances pesticidal and herbicidal activity by altering the ATP gradient across biol. membranes)

L114 ANSWER 19 OF 29 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:816687 CAPLUS
DOCUMENT NUMBER: 135:353892
TITLE: Nucleotide sequence of human ABC1 promoter and **assays** based thereon
INVENTOR(S): Tall, Alan R.
PATENT ASSIGNEE(S): The Trustees of Columbia University In the City of New York, USA
SOURCE: PCT Int. Appl., 68 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001083506	A1	20011108	WO 2001-US13654	20010427
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6773893	B1	20040810	US 2000-560372	20000428

PRIORITY APPLN. INFO.: US 2000-560372 A 20000428
ED Entered STN: 09 Nov 2001
AB Disclosed is the sequence of the human ABC1 promoter, a method for expressing foreign DNA in host cells using the human ABC1 promoter,

including a method of determining whether a chemical not previously known to be a modulator of the human ABC1 gene, and transcriptionally modulates the expression of the human ABC1 gene. Also disclosed is a sterol-responsive region of the human ABC1 promoter, along with a showing that it is activated by hydroxysterols and 9-cis-retinoic acid, implicating a mechanism of activation involving LXR/RXR heterodimers.

IC ICM C07H021-02
ICS C07H021-04; C12N005-00; C12N005-02; C12N015-00; C12N015-09; C12N015-63; C12N015-70; C12N015-74; A01N043-04; A61K031-70; A01K067-027

CC 3-4 (Biochemical Genetics)
Section cross-reference(s): 1

IT Transport proteins
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(ABC (**ATP-binding cassette**-containing), ABCA1; nucleotide sequence of human ABC1 promoter and **assays** based thereon)

IT Promoter (genetic element)
RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)
(ABC1; nucleotide sequence of human ABC1 promoter and **assays** based thereon)

IT Gene, animal
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(ABC1; nucleotide sequence of human ABC1 promoter and **assays** based thereon)

IT Animal cell line
(African green monkey CV-1 cells; nucleotide sequence of human ABC1 promoter and **assays** based thereon)

IT Animal cell line
(RAW cells; nucleotide sequence of human ABC1 promoter and **assays** based thereon)

IT Transcriptional regulation
(activation, ABC1 promoter; nucleotide sequence of human ABC1 promoter and **assays** based thereon)

IT Virus vectors
(adenovirus; nucleotide sequence of human ABC1 promoter and **assays** based thereon)

IT Monolayers
Suspensions
(cell; nucleotide sequence of human ABC1 promoter and **assays** based thereon)

IT Receptors
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(complexes, LXR/RXR heterodimers; nucleotide sequence of human ABC1 promoter and **assays** based thereon)

IT Genetic element
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(exon, ABC1; nucleotide sequence of human ABC1 promoter and **assays** based thereon)

IT Animal cell line
(human 293 cells; nucleotide sequence of human ABC1 promoter and **assays** based thereon)

IT Cell
(human; nucleotide sequence of human ABC1 promoter and **assays** based thereon)

IT Transformation, neoplastic

(immortalization; nucleotide sequence of human ABC1 promoter and **assays** based thereon)
IT Transformation, genetic
(liposome-mediated; nucleotide sequence of human ABC1 promoter and **assays** based thereon)
IT Transformation, genetic
(microinjection; nucleotide sequence of human ABC1 promoter and **assays** based thereon)
IT Animal cell
Atherosclerosis
Concentration (condition)
DNA sequences
Drug screening
Embryo, animal
Eukaryote (Eukaryotae)
Gamete and Germ cell
Macrophage
Molecular cloning
Mouse
Plant cell
Recombination, genetic
Southern blot hybridization
(nucleotide sequence of human ABC1 promoter and **assays** based thereon)
IT Reporter gene
Retinoid X receptors
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(nucleotide sequence of human ABC1 promoter and **assays** based thereon)
IT Transcription, genetic
(of coding sequence, ABC1 promoter driven; nucleotide sequence of human ABC1 promoter and **assays** based thereon)
IT Steroid receptors
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(oxy; nucleotide sequence of human ABC1 promoter and **assays** based thereon)
IT Genetic element
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(regulatory; nucleotide sequence of human ABC1 promoter and **assays** based thereon)
IT Animal cell
(somatic; nucleotide sequence of human ABC1 promoter and **assays** based thereon)
IT Genetic element
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(steroid-responsive element; nucleotide sequence of human ABC1 promoter and **assays** based thereon)
IT Transformation, genetic
(topical application; nucleotide sequence of human ABC1 promoter and **assays** based thereon)
IT Transcription factors
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(transactivator protein; nucleotide sequence of human ABC1 promoter and **assays** based thereon)

IT Mammal (Mammalia)
(transgenic non-human; nucleotide sequence of human ABC1 promoter and **assays** based thereon)
IT Infection
(viral, adenovirus; nucleotide sequence of human ABC1 promoter and **assays** based thereon)
IT 5300-03-8, 9-cis-Retinoic acid 9001-45-0, β-Glucuronidase 9014-00-0, Luciferase 9031-11-2, β-Galactosidase 9040-07-7, Chloramphenicol acetyltransferase 17711-16-9, 22-Hydroxycholesterol 37350-22-4, Guanine xanthine phosphoribosyltransferase 62213-36-9, Neomycin phosphotransferase
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(nucleotide sequence of human ABC1 promoter and **assays** based thereon)
IT 326501-62-6
RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)
(nucleotide sequence; nucleotide sequence of human ABC1 promoter and **assays** based thereon)
IT 372209-40-0, 1: PN: WO0183506 PAGE: 25 unclaimed DNA 372209-41-1, 2: PN: WO0183506 PAGE: 25 unclaimed DNA 372209-42-2, 3: PN: WO0183506 PAGE: 25 unclaimed DNA 372209-43-3, 4: PN: WO0183506 PAGE: 25 unclaimed DNA 372209-44-4, 5: PN: WO0183506 PAGE: 27 unclaimed DNA 372209-45-5, 6: PN: WO0183506 PAGE: 27 unclaimed DNA 372209-46-6, 7: PN: WO0183506 PAGE: 24 unclaimed DNA
RL: PRP (Properties)
(unclaimed nucleotide sequence; nucleotide sequence of human ABC1 promoter and **assays** based thereon)
REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L114 ANSWER 20 OF 29 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:676991 CAPLUS
DOCUMENT NUMBER: 135:222868
TITLE: Pesticide adjuvant activity through modulation of animal and plant cell membrane transport
INVENTOR(S): Windsor, J. Brian; Roux, Stan J.; Lloyd, Alan M.
PATENT ASSIGNEE(S): Board of Regents of the University of Texas System, USA
SOURCE: PCT Int. Appl., 76 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001066792	A1	20010913	WO 2001-US7423	20010307
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 2002103082	A1	20020801	US 2001-800327	20010306

CA 2373424 AA 20010913 CA 2001-2373424 20010307
PRIORITY APPLN. INFO.: US 2000-187819P P 20000308
US 2001-800327 A 20010306
WO 2001-US7423 W 20010307

ED Entered STN: 14 Sep 2001
AB The invention relates to the modulation of pesticidal and herbicidal activity by treatment of a membrane transport system in a cell. This entails modifying the extracellular phosphatases found in the membranes of these cells. By modifying the ATP gradient across the biol. membrane of a target plant, bacteria, insect or mammalian cell via inhibiting one or more extracellular phosphatases, it is possible to alter the sensitivity to a pesticide or herbicide. In preferred embodiments, the chemical moieties of the invention act as adjuvants to enhance pesticidal activity.
IC ICM C12Q001-42
ICS C12Q001-34; C12Q001-00
CC 5-4 (Agrochemical Bioregulators)
IT Transport proteins
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(ABC (**ATP-binding cassette**-containing); pesticide adjuvants acting by **inhibition** of extracellular phosphatases and **ABC transporters**)
IT 1897-45-6, Chlorothalonil
RL: **AGR (Agricultural use)**; BIOL (Biological study); USES (Uses)
(fungicide adjuvants acting by inhibition of extracellular phosphatases in membranes)
IT 19044-88-3, Surflan 40487-42-1, Pendimethalin
RL: **AGR (Agricultural use)**; BIOL (Biological study); USES (Uses)
(herbicide adjuvants acting by inhibition of extracellular phosphatases in membranes)
IT 41481-51-0 139963-64-7 154201-55-5 168832-50-6 171248-07-0
291536-79-3 291536-80-6 291536-81-7 291536-82-8 291536-84-0
291536-85-1 291536-86-2 291536-87-3 291536-88-4 291536-89-5
291536-90-8 291536-91-9 291536-92-0 313493-42-4
RL: **AGR (Agricultural use)**; BIOL (Biological study); USES (Uses)
(pesticide adjuvant acting by inhibition of extracellular phosphatases in membranes)
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L114 ANSWER 21 OF 29 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:661570 CAPLUS
DOCUMENT NUMBER: 135:206922
TITLE: Pesticidal and herbicidal activity through modulation of animal and plant cell membrane transport
INVENTOR(S): Windsor, J. Brian; Roux, Stan J.; Lloyd, Alan M.
PATENT ASSIGNEE(S): Board of Regents, the University of Texas System, USA
SOURCE: PCT Int. Appl., 74 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001064859	A1	20010907	WO 2001-US6503	20010227

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,

LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,
SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU,
ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
PRIORITY APPLN. INFO.: US 2000-185299P P 20000228
ED Entered STN: 10 Sep 2001
AB The invention relates to the modulation of pesticidal and herbicidal activity by treatment of a membrane transport system in a cell. This entails modifying the extra-cellular phosphatases found in the membranes of these cells. By modifying the ATP gradient across the biol. membrane of a target plant, bacteria, insect or mammalian cell via inhibiting one or more extracellular phosphatases, it is possible to alter the sensitivity to a pesticide or herbicide. The method also comprises inhibiting an ABC transporter in the target cell. The method can also be used for identifying chems. with pesticidal activity.
IC C12N009-99; C12N015-01; A01H001-06
CC 5-4 (Agrochemical Bioregulators)
ST pesticide herbicide ectophosphatase **ABC transporter inhibition**
IT Transport proteins
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(ABC (**ATP-binding cassette**-containing);
enhancement of pesticidal and herbicidal activity by altering the ATP gradient across biol. membranes and **inhibiting** an **ABC transporter**)
IT 41481-51-0 139963-64-7 154201-55-5 168832-50-6 171248-07-0
291536-79-3 291536-80-6 291536-81-7 291536-82-8 291536-83-9
291536-84-0 291536-86-2 291536-87-3 291536-88-4 291536-89-5
291536-90-8 291536-91-9 291536-92-0 358622-53-4
RL: **AGR (Agricultural use)**; BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(ectophosphatase inhibitor which enhances pesticidal and herbicidal activity by altering the ATP gradient across biol. membranes)
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L114 ANSWER 22 OF 29 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:628251 CAPLUS
DOCUMENT NUMBER: 133:219782
TITLE: Genetic and epigenetic manipulation of ABC transporters and ecto-phosphatases for modulating drug resistance and methods for detection of ecto-phosphatase inhibitors
INVENTOR(S): Thomas, Collin E.; Windsor, J. Brian; Roux, Stan J.; Lloyd, Alan M.; Hurley, Laurence
PATENT ASSIGNEE(S): University of Texas, USA
SOURCE: PCT Int. Appl., 85 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000052144	A1	20000908	WO 2000-US5315	20000228

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU,

CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,
IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,
MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,
SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,
DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

EP 1185623 A1 20020313 EP 2000-913685 20000228
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO

US 2002173031 A1 20021121 US 2002-47251 20020114
PRIORITY APPLN. INFO.: US 1999-261825 A 19990303
WO 2000-US5315 W 20000228

ED Entered STN: 10 Sep 2000

AB The present invention relates to methods for modulating the resistance of cells to foreign compds., i.e. drugs, antibiotics, etc. by altering the ATP gradient across biol. membranes. Altering the ATP gradient across biol. membranes is achieved through the manipulation of ecto-phosphatase activity and ABC transporter mol. activity. The above method may be useful to confer herbicide resistance to plants, antibiotic resistance to bacteria, and drug resistance to yeast cells, or to reduce resistance in cells,bacteria, and yeast in order to facilitate chemotherapeutic treatments. The present invention is also directed to the methods for identifying ecto-phosphatase inhibitors and uses thereof. Thus, Arabidopsis thaliana has been shown to possess an ecto-apyrase and this ecto-apyrase and PGP-1 (an MDR-like protein) to have a role in MDR. Addnl., the extracellular ATP pool was shown to be critical for MDR in yeast. Screening of a combinatorial library of small mols. has resulted in identification of apyrase inhibitors.

IC ICM C12N005-04
ICS C12N005-06; C12N001-16; C12N001-20; C12N015-67; C12N015-81; C12N015-82; C12N015-90; A01H001-00; A01H005-00

CC 9-2 (Biochemical Methods)
Section cross-reference(s): 1, 3, 10, 11

IT Chemotherapy
Herbicide resistance
(augmentation of; genetic and epigenetic manipulation of ABC transporters and ecto-phosphatases for modulating drug resistance and methods for detection of ecto-phosphatase inhibitors)

IT Arabidopsis thaliana
Aspergillus fumigatus
Bacteria (Eubacteria)
Drug resistance
Lactococcus lactis
Pea
Plant cell
Saccharomyces cerevisiae
Yeast
(genetic and epigenetic manipulation of ABC transporters and ecto-phosphatases for modulating drug resistance and methods for detection of ecto-phosphatase inhibitors)

IT **9013-05-2**, Phosphatase 41481-51-0 139963-64-7 154201-55-5
168832-50-6 171248-07-0 291536-79-3 291536-80-6 291536-81-7
291536-82-8 291536-83-9 291536-84-0 291536-85-1 291536-86-2
291536-87-3 291536-88-4 291536-89-5 291536-90-8 291536-91-9
291536-92-0
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(genetic and epigenetic manipulation of ABC transporters and

ecto-phosphatases for modulating drug resistance and methods for detection of ecto-phosphatase inhibitors)
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L114 ANSWER 23 OF 29 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2005:33271 BIOSIS
DOCUMENT NUMBER: PREV200500033239
TITLE: **Yeast** strains designed for screening of reversal agents and genetic suppressors of multidrug resistance.
AUTHOR(S): Kozovska, Zuzana; Hikkel, Imrich; Sidorova, Michaela; Subik, Julius [Reprint Author]
CORPORATE SOURCE: Fac Nat SciDept Microbiol and Virol, Comenius Univ, Mlynska Dolina B-2, Bratislava, 84215 4, Slovakia
subik@fns.uniba.sk
SOURCE: International Journal of Antimicrobial Agents, (October 2004) Vol. 24, No. 4, pp. 386-392. print.
ISSN: 0924-8579.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 12 Jan 2005
Last Updated on STN: 12 Jan 2005
ABSTRACT:Multidrug resistance in yeast results from over-expression of drug efflux transporter genes due to gain-of-function mutations in transcription factors. To suppress multidrug resistance at the level of gene expression, we have developed a yeast-based screening system for the detection of compounds ***down*** **-regulating** the major multidrug **ABC** ***transporter*** Pdr5p expressed under the control of Pdr3p transcription factor. Here, we report the construction and properties of the improved set of yeast strains designed along with such screening also for a global analysis of genetic suppressors of multidrug resistance. The basic components of this system, the PGAL1-PDR3 and PPDR5-pma1(D378N) fusion genes, were individually or simultaneously integrated into corresponding chromosomes of a hypersensitive S. cerevisiae strain deleted in the PDR1 and PDR3 genes. This resulted in increased mitotic stability of a set of new test strains compared with the original prototrophic strain ZK11-1 developed previously. In addition, some of the strains designed are auxotrophic for leucine, uracil and histidine allowing them to be used in genetic screens for positive selection of multicopy or loss-of-function genetic suppressors of multidrug resistance.
CONCEPT CODE: Genetics - General 03502
Genetics - Plant 03504
Genetics - Human 03508
Medical and clinical microbiology - Mycology 36008
INDEX TERMS: Major Concepts
Infection; Methods and Techniques; Molecular Genetics (Biochemistry and Molecular Biophysics)
INDEX TERMS: Diseases
fungal infection: fungal disease, genetics
Mycoses (MeSH)
INDEX TERMS: Chemicals & Biochemicals
Pdr5p: ABC transporter
INDEX TERMS: Methods & Equipment
genetic screening: genetic techniques, laboratory techniques

Searched by Barb O'Bryen, STIC 2-2518

INDEX TERMS: Miscellaneous Descriptors
drug efflux transporter; multidrug resistance; reversal agent
ORGANISM: Classifier
Ascomycetes 15100
Super Taxa
Fungi; Plantae
Organism Name
Saccharomyces cerevisiae (species): pathogen, strain-ZK11-1
Taxa Notes
Fungi, Microorganisms, Nonvascular **Plants**, **Plants**
ORGANISM: Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
human (common): host
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates
GENE NAME: Saccharomyces cerevisiae P-GAL1-PDR3 gene (Ascomycetes); Saccharomyces cerevisiae P-PDR5-pma1(D378N) gene (Ascomycetes); Saccharomyces cerevisiae PDR1 gene (Ascomycetes); Saccharomyces cerevisiae PDR3 gene (Ascomycetes)

L114 ANSWER 24 OF 29 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2003:328154 BIOSIS
DOCUMENT NUMBER: PREV200300328154
TITLE: Synergistic antifungal effect of fluconazole (**FLU**) and CDR1/2 **efflux** pump inhibitors: Insights into the trailing growth phenomenon.
AUTHOR(S): Andrade, R. A. [Reprint Author]; Ostrosky-Zeichner, L. [Reprint Author]; Paetznick, V. L. [Reprint Author]; Rodriguez, J. R. [Reprint Author]; Chen, E. [Reprint Author]; Rex, J. H. [Reprint Author]
CORPORATE SOURCE: Medical School, University of Texas-Houston, Houston, TX, USA
SOURCE: Abstracts of the Interscience Conference on Antimicrobial Agents and Chemotherapy, (2002) Vol. 42, pp. 379. print. Meeting Info.: 42nd Interscience Conference on Antimicrobial Agents and Chemotherapy. San Diego, CA, USA. September 27-30, 2002. American Society for Microbiology.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 16 Jul 2003
Last Updated on STN: 16 Jul 2003
ABSTRACT:Background: Efflux by membrane-based pumps is a mechanism of azole resistance for Candida spp. These pumps are constitutive components of the fungal genome & we hypothesized that their expression might contribute to the trailing growth (incomplete growth inhibition even at very high drug concentrations) seen during antifungal susceptibility testing (AFST). MC-510011 & MC-510027 are milbemycins (MLBs) that **inhibit** the ***ATP*** **binding cassette** (ABC) efflux pumps CDR1 and CDR2. We sought to determine whether these compounds were synergistic with FLU and if they eliminated trailing growth. Methods: Interactions between

fluconazole (FLU) and MLBs were assessed using methods based on NCCLS M-27A microdilution AFST. Results: By checkerboard testing of 11 strains (4 C. albicans, 3 C. tropicalis, 1 C. parapsilosis, 2 C. lusitaniae, 1 C. krusei), the median (range) Fractional Inhibitory Concentration Index (FICI) based on an MIC read at 48h as an optically clear well (MIC-0) was 0.06 (0.01-0.5) for MC-510011 and 0.25 (0.01-0.51) for MC-510027. MLBs showed weak antifungal effects on their own. The optimal concentrations for synergy were 8 and 4 mug/mL for the two MLBs, respectively. We assessed the effect of these fixed concentrations of the MLBs combined with FLU in 45 strains (7 C. albicans, 1 C. dubliniensis, 10 C. glabrata, 1 C. krusei, 4 C. lusitaniae, 12 C. parapsilosis, 10 C. tropicalis). Of these, 19 strains exhibited trailing growth. Addition of either MLB eliminated trailing in all strains and reduced the FLU MIC up to 256-fold. For the 26 strains without trailing growth, addition of MLBs reduced the FLU MIC up to 32-fold for both compounds. Conclusion: These MLBs are strongly synergistic with FLU in vitro. Constitutive expression of CDR1 and CDR2 may contribute to the trailing growth phenomenon seen during AFST.

CONCEPT CODE: General biology - Symposia, transactions and proceedings 00520
Biochemistry studies - General 10060
Pathology - Therapy 12512
Pharmacology - General 22002
Chemotherapy - General, methods and metabolism 38502
Chemotherapy - Antifungal agents 38508
Plant physiology - Chemical constituents 51522

INDEX TERMS: Major Concepts
Biochemistry and Molecular Biophysics; Infection; Pharmacology

INDEX TERMS: Diseases
fungal infection: fungal disease, drug therapy
Mycoses (MeSH)

INDEX TERMS: Chemicals & Biochemicals
CDR1/2 efflux pump inhibitors: pharmacodynamics, synergism, pharmaceutical; fluconazole: antifungal-drug, antiinfective-drug, pharmacodynamics, synergism

INDEX TERMS: Miscellaneous Descriptors
drug synergism; fungal drug resistance mechanisms; trailing growth phenomenon: insights, significance

ORGANISM: Classifier
Fungi 15000
Super Taxa
Plantae
Organism Name
fungus (common): pathogen
Taxa Notes
Fungi, Microorganisms, Nonvascular **Plants**, **Plants**

ORGANISM: Classifier
Fungi Imperfecti or Deuteromycetes 15500
Super Taxa
Fungi; Plantae
Organism Name
Candida spp. (species): pathogen, clinical isolates
Taxa Notes
Fungi, Microorganisms, Nonvascular **Plants**, **Plants**

REGISTRY NUMBER: 86386-73-4 (fluconazole)

L114 ANSWER 25 OF 29 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2002:598387 BIOSIS

Searched by Barb O'Bryen, STIC 2-2518

DOCUMENT NUMBER: PREV200200598387
TITLE: **Pollen** germination is **inhibited** by disruption of **apyrases** in Arabidopsis.
AUTHOR(S): Steinebrunner, Iris A. [Reprint author]; Wu, Jian [Reprint author]; Sun, Yu [Reprint author]; Roux, Stanley J. [Reprint author]
CORPORATE SOURCE: Molecular Cell and Developmental Biology, University of Texas at Austin, Austin, TX, USA
isteineb@mail.utexas.edu
SOURCE: Plant Biology (Rockville), (2002) Vol. 2002, pp. 29. print.
Meeting Info.: Annual Meeting of the American Society of Plant Biologists on Plant Biology. Denver, CO, USA. August 03-07, 2002. American Society of Plant Biologists.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 20 Nov 2002
Last Updated on STN: 20 Nov 2002
CONCEPT CODE: General biology - Symposia, transactions and proceedings 00520
Genetics - General 03502
Genetics - Plant 03504
Enzymes - General and comparative studies: coenzymes 10802
Reproductive system - Physiology and biochemistry 16504
Development and Embryology - General and descriptive 25502
Plant physiology - Growth, differentiation 51510
Plant physiology - Reproduction 51512
Plant physiology - Enzymes 51518
INDEX TERMS: Major Concepts
Development; Enzymology (Biochemistry and Molecular Biophysics); Molecular Genetics (Biochemistry and Molecular Biophysics); Reproductive System (Reproduction)
INDEX TERMS: Parts, Structures, & Systems of Organisms
pollen grain: reproductive system; pollen tube: reproductive system
INDEX TERMS: Chemicals & Biochemicals
apyrase: disruption; **extracellular** ATP [xATP]
INDEX TERMS: Miscellaneous Descriptors
pollen germination inhibition; Meeting Abstract
ORGANISM: Classifier
Cruciferae 25880
Super Taxa
Dicotyledones; Angiospermae; Spermatophyta; Plantae
Organism Name
Arabidopsis
Taxa Notes
Angiosperms, Dicots, **Plants**, Spermatophytes, Vascular **Plants**
REGISTRY NUMBER: 9000-95-7 (apyrase)
GENE NAME: Arabidopsis Atapy1 gene (Cruciferae); Arabidopsis Atapy2 gene (Cruciferae)

L114 ANSWER 26 OF 29 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2001:140801 BIOSIS
DOCUMENT NUMBER: PREV200100140801
TITLE: Protein kinase **C** effectors bind to multidrug

ABC transporters and **inhibit**
their activity.

AUTHOR(S): Conseil, Gwenaelle; Perez-Victoria, Jose Maria; Jault, Jean-Michel; Gamarro, Francisco; Goffeau, Andre; Hofmann, Johann; Di Pietro, Attilio [Reprint author]
CORPORATE SOURCE: Laboratoire des Proteines de Resistance aux Drogues Chimiotherapeutiques, Institut de Biologie et Chimie des Proteines, UMR 5086 CNRS-Universite Claude Bernard-Lyon I, 7 Passage du Vercors, 69367, Lyon Cedex 07, France
a.dipietro@ibcp.fr

SOURCE: Biochemistry, (February 27, 2001) Vol. 40, No. 8, pp. 2564-2571. print.
CODEN: BICHAW. ISSN: 0006-2960.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 21 Mar 2001
Last Updated on STN: 15 Feb 2002

ABSTRACT:P-Glycoprotein and homologous multidrug transporters contain a phosphorylatable linker sequence that was proposed to control drug efflux on the basis that it was indeed phosphorylated in vitro and in vivo, and that inhibitors of protein kinase C (PKC) inhibited both P-glycoprotein phosphorylation and activity. However, site-directed mutagenesis of all phosphorylatable residues did not alter the drug resistance. The present work shows that PKC effectors are able to bind directly to multidrug transporters, from either cancer cells (mouse P-glycoprotein), yeast (Saccharomyces cerevisiae Pdr5p), or protozoan parasite (Leishmania tropica ltmdr1), and to inhibit their energy-dependent drug-efflux activity. The binding of staurosporine and derivatives such as CGP 41251 is prevented by preincubation with ATP, suggesting at least partial interaction at the ATP-binding site. In contrast, more hydrophobic compounds such as calphostin C and CGP 42700 bind outside the ATP-binding site and strongly interfere with drug interaction. A direct correlation is obtained between the efficiencies of PKC effectors to inhibit energy-dependent interaction of rhodamine 6G with yeast Pdr5p, to promote intracellular drug accumulation in various multidrug resistant cells, and to chemosensitize growth of resistant cells. The noncompetitive inhibition by PKC effectors of rhodamine 6G interaction with Pdr5p suggests that the binding might interfere with signal transduction between nucleotide hydrolysis and drug interaction. The overall results indicate that the multidrug transporters from different species display common features for interaction with PKC inhibitors. The hydrophobic derivative of staurosporine, CGP 42700, constitutes a potentially powerful modulator of P-glycoprotein-mediated multidrug resistance.

CONCEPT CODE: Cytology - General 02502
Cytology - Plant 02504
Cytology - Animal 02506
Genetics - General 03502
Genetics - Plant 03504
Genetics - Animal 03506
Biochemistry studies - General 10060
Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Carbohydrates 10068
Enzymes - General and comparative studies: coenzymes 10802
Plant physiology - Enzymes 51518
Invertebrata: comparative, experimental morphology, physiology and pathology - Protozoa 64002
INDEX TERMS: Major Concepts
Enzymology (Biochemistry and Molecular Biophysics); Molecular Genetics (Biochemistry and Molecular

Searched by Barb O'Bryen, STIC 2-2518

Biophysics); Cell Biology; Methods and Techniques
INDEX TERMS: Chemicals & Biochemicals
CGP 41251: Novartis Pharma AG, enzyme inhibitor, protein kinase C inhibitor, staurosporine derivative; CGP 42700: Novartis Pharma AG, enzyme inhibitor, protein kinase C inhibitor; P-glycoprotein: analysis; Pdr5p protein: analysis; calphostin C: Alexis Biochemicals, enzyme inhibitor, protein kinase C inhibitor; ltmdr1 protein: analysis; protein kinase C effectors: activity, analysis, multidrug ABC transporter binding; staurosporine: Alexis Biochemicals, enzyme inhibitor, protein kinase C inhibitor
INDEX TERMS: Methods & Equipment
site-directed mutagenesis: genetic method, mutagenesis
INDEX TERMS: Miscellaneous Descriptors
cell growth regulation; multidrug resistance [MDR]
ORGANISM: Classifier
Ascomycetes 15100
Super Taxa
Fungi; Plantae
Organism Name
Saccharomyces cerevisiae
Taxa Notes
Fungi, Microorganisms, Nonvascular **Plants**, **Plants**
ORGANISM: Classifier
Flagellata 35200
Super Taxa
Protozoa; Invertebrata; Animalia
Organism Name
Leishmania tropica
Taxa Notes
Animals, Invertebrates, Microorganisms, Protozoans
ORGANISM: Classifier
Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
mouse
Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates
REGISTRY NUMBER: 120685-11-2 (CGP 41251)
121578-39-0 (CGP 42700)
121263-19-2 (calphostin C)
62996-74-1 (staurosporine)

L114 ANSWER 27 OF 29 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2003:497849 BIOSIS
DOCUMENT NUMBER: PREV200300499920
TITLE: Microbial fermentation-derived inhibitors of **efflux** -pump-mediated drug resistance.
AUTHOR(S): Lee, May D. [Reprint Author]; Galazzo, Jorge L.; Staley, Andrew L.; Lee, Julie C.; Warren, Mark S.; Fuernkranz, Hans; Chamberland, Suzanne; Lomovskaya, Olga; Miller, George H.
CORPORATE SOURCE: Microcide Pharmaceuticals, Inc., 850 Maude Avenue, Mountain View, CA, 94043, USA
mlee@microcide.com

Searched by Barb O'Bryen, STIC 2-2518

SOURCE: Farmaco (Lausanne), (January-February 2001) Vol. 56, No. 1-2, pp. 81-85. print.
ISSN: 0014-827X.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 29 Oct 2003
Last Updated on STN: 29 Oct 2003

ABSTRACT:A library of 85 000 microbial fermentation extracts was screened for inhibitors of multidrug resistance efflux pumps in Pseudomonas aeruginosa and Candida albicans. New compounds EA-371alpha and EA-371delta were isolated and demonstrated to be potent and specific inhibitors of the MexAB-OprM pump in P. aeruginosa. Two series of fungal metabolites, enniatins and beauvericins, were found to be ubiquitous and potent **inhibitors** of **ABC** ***transporters.*** Milbemycins were rediscovered as potent inhibitors of the CDR1 pump in C. albicans, and demonstrated to potentiate effectively the antifungal activity of fluconazole and SCH-56592 against a wide variety of Candida clinical isolates.

CONCEPT CODE: Biochemistry studies - General 10060
Pathology - Therapy 12512
Pharmacology - General 22002
Physiology and biochemistry of bacteria 31000
Chemotherapy - General, methods and metabolism 38502
Chemotherapy - Antifungal agents 38508

INDEX TERMS: Major Concepts
Pharmacology

INDEX TERMS: Chemicals & Biochemicals
ABC transporter; CDR1 pump; EA-371-alpha: enzyme inhibitor-drug; EA-371-delta: enzyme inhibitor-drug; MexAB-OprM pump; MexEF pump; SCH-56592: antifungal-drug, antiinfective-drug; beauvericin: enzyme inhibitor-drug; enniatin: enzyme inhibitor-drug; fluconazole: antifungal-drug, antiinfective-drug; milbemycin: enzyme inhibitor-drug; natural product extract: enzyme inhibitor-drug

INDEX TERMS: Methods & Equipment
microbial fermentation: laboratory techniques

INDEX TERMS: Miscellaneous Descriptors
drug resistance

ORGANISM: Classifier
Fungi Imperfecti or Deuteromycetes 15500
Super Taxa
Fungi; Plantae
Organism Name
Candida albicans (species)
Candida glabrata (species)
Candida guillermondii (species)
Candida krusei (species)
Candida lipolytica (species)
Candida lusitaniae (species)
Candida parapsilosis (species)
Candida pseudotropicalis (species)
Candida tropicalis (species)
Taxa Notes
Fungi, Microorganisms, Nonvascular **Plants**, **Plants**

ORGANISM: Classifier
Pseudomonadaceae 06508
Super Taxa
Gram-Negative Aerobic Rods and Cocci; Eubacteria; Bacteria; Microorganisms

Searched by Barb O'Bryen, STIC 2-2518

Organism Name
Pseudomonas aeruginosa (species)
Taxa Notes
Bacteria, Eubacteria, Microorganisms
REGISTRY NUMBER: 360568-74-7 (EA-371-alpha)
360568-75-8 (EA-371-delta)
171228-49-2 (SCH-56592)
26048-05-5 (beauvericin)
11113-62-5 (enniatin)
86386-73-4 (fluconazole)
51570-36-6 (milbemycin)

L114 ANSWER 28 OF 29 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1995:444681 BIOSIS
DOCUMENT NUMBER: PREV199598458981
TITLE: Lithium-sensitive calcium activity in the germination of apple (Malus X domestica Borkh.), tobacco (Nicotiana tabacum L.), and potato (Solanum tuberosum L.) **pollen.**
AUTHOR(S): Zonia, L.; Tupy, J. [Reprint author]
CORPORATE SOURCE: Inst. Experimental Botany, Acad. Sci. Czech Republic, Na Pernikarce 15, CZ-160 00 Prague 6, Czech Republic
SOURCE: Journal of Experimental Botany, (1995) Vol. 46, No. 289, pp. 973-979.
CODEN: JEBOA6. ISSN: 0022-0957.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 10 Oct 1995
Last Updated on STN: 10 Oct 1995

ABSTRACT:We have investigated Ca-2+ activity during pollen germination and the possibility that it may be responding to a phosphoinositide signal transduction pathway, by employing inhibitors of Ca-2+ channels (verapamil and TMB-8), EGTA as a Ca-2+ scavenger and the inositol 1-**phosphatase inhibitor** lithium chloride. We have found that at least two Ca-2+ pools are utilized during pollen germination. Influx of **extracellular** Ca-2+ appears to be necessary for the germination of apple and tobacco pollen, but it does not appear to be required for the germination of potato pollen. Conversely, activation of intracellularly stored Ca-2+ was necessary for optimal germination of all three pollen species. LiCl had strong effects on pollen germination. At 5 mM LiCl, pollen germination was inhibited by 78% for apple, 84% for tobacco, and 74% for potato. Li+ inhibition was overcome by the addition of Ca-2+, which restores germination of all three species to 85-100% of that observed in controls. myo-Inositol also partially overcomes Li+ inhibition of pollen germination, thus providing some evidence for a link between Li+ inhibition and Ca-2+ rescue. myo-Inositol rescue of Li+ inhibition was most effective for potato pollen. Chlorotetracycline (CTC) spectroscopy revealed a higher level of membrane-Ca-2+ in Li+treated pollen grains than in controls, and the short pollen tubes which did emerge did not accumulate membrane-associated Ca-2+. The results suggest that Li+ inhibition may interfere with the release (activation) or partitioning of membrane-Ca-2+ during pollen germination and that this Ca-2+ activity may be responding, at least in part, with a phosphoinositide signal transduction pathway.

CONCEPT CODE: Cytology - Plant 02504
Biochemistry studies - Minerals 10069
Plant physiology - Growth, differentiation 51510
Plant physiology - Reproduction 51512
INDEX TERMS: Major Concepts
Biochemistry and Molecular Biophysics; Cell Biology; Development; Reproduction

Searched by Barb O'Bryen, STIC 2-2518

INDEX TERMS: Chemicals & Biochemicals
LITHIUM; CALCIUM
INDEX TERMS: Miscellaneous Descriptors
CALCIUM INHIBITORS; PHOSPHOINOSITIDE SIGNAL TRANSDUCTION PATHWAY
ORGANISM: Classifier
Rosaceae 26675
Super Taxa
Dicotyledones; Angiospermae; Spermatophyta; Plantae
Organism Name
Malus domestica
Taxa Notes
Angiosperms, Dicots, **Plants**, Spermatophytes, Vascular **Plants**
ORGANISM: Classifier
Solanaceae 26775
Super Taxa
Dicotyledones; Angiospermae; Spermatophyta; Plantae
Organism Name
Nicotiana tabacum
Solanum tuberosum
Taxa Notes
Angiosperms, Dicots, **Plants**, Spermatophytes, Vascular **Plants**
REGISTRY NUMBER: 7439-93-2 (LITHIUM)
7440-70-2 (CALCIUM)

L114 ANSWER 29 OF 29 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1995:211950 BIOSIS
DOCUMENT NUMBER: PREV199598226250
TITLE: **Systemin** induces rapid ion fluxes and ethylene biosynthesis in Lycopersicon peruvianum cells.
AUTHOR(S): Felix, Georg [Reprint author]; Boller, Thomas
CORPORATE SOURCE: Friedrich Miescher-Inst., POB 2543, CH-4002 Basel, Switzerland
SOURCE: Plant Journal, (1995) Vol. 7, No. 3, pp. 381-389.
ISSN: 0960-7412.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 23 May 1995
Last Updated on STN: 23 May 1995

ABSTRACT:Suspension-cultured cells of Lycopersicon peruvianum L. reacted to the presence of mechanically damaged cells with a transient alkalinization of their culture medium. This response resembled the alkalinization observed after treatment with fungal signal molecules such as chitin fragments and ergosterol or after application of the protein **phosphatase inhibitor** calyculin A. When compounds implicated in wound signalling were tested, the 18 amino acid peptide systemin was found to be a potent inducer of the alkalinization response, with a half-maximal activity at concentrations of apprx 100 pM. The decrease in **extracellular** H+ was paralleled by an increase of K+, and induction of both on fluxes was blocked by the protein kinase inhibitor K-252a. Systemin also caused rapid increases in the activities of 1-aminocyclopropane-1-carboxylate (ACC) synthase and phenylalanine ammonia-lyase, two other responses commonly observed in cells treated with elicitors. The systemin analogue systemin-Ala-17, a reported systemin antagonist in the induction of proteinase inhibitors in tomato plants, provoked a much weaker alkalinization response and did not induce ACC synthase at all. When applied together with authentic systemin, this analogue antagonized induction of both responses, indicating that the perception system

for systemin had very similar properties in the L. peruvianum cells as in tomato plants. In conclusion, suspension-cultured L. peruvianum cells provide a convenient and highly sensitive system to study elements of wound response and, in particular, systemin perception.

CONCEPT CODE: Cytology - Plant 02504
Biochemistry studies - General 10060
Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Minerals 10069
External effects - Physical and mechanical effect 10612
Enzymes - Physiological studies 10808
Metabolism - General metabolism and metabolic pathways 13002
Plant physiology - Growth substances 51514
Plant physiology - Enzymes 51518
Plant physiology - Metabolism 51519

INDEX TERMS: Major Concepts
Cell Biology; Chemical Coordination and Homeostasis; Enzymology (Biochemistry and Molecular Biophysics); Metabolism

INDEX TERMS: Chemicals & Biochemicals
ETHYLENE; POTASSIUM ION; 1-AMINOCYCLOPROPANE-1-CARBOXYLIC ACID SYNTHASE

INDEX TERMS: Miscellaneous Descriptors
ALKALINIZATION; CELL DAMAGE; PHYTOHORMONE; POTASSIUM ION; PROTONS; WOUNDING; 1-AMINOCYCLOPROPANE-1-CARBOXYLIC ACID SYNTHASE ACTIVITY

ORGANISM: Classifier
Solanaceae 26775
Super Taxa
Dicotyledones; Angiospermae; Spermatophyta; Plantae
Organism Name
Lycopersicon peruvianum
Taxa Notes
Angiosperms, Dicots, **Plants**, Spermatophytes, Vascular **Plants**

REGISTRY NUMBER: 74-85-1 (ETHYLENE)
24203-36-9 (POTASSIUM ION)
72506-68-4 (1-AMINOCYCLOPROPANE-1-CARBOXYLIC ACID SYNTHASE)

FILE 'HOME' ENTERED AT 16:57:31 ON 26 APR 2005

=>

=> d his full

```
     (FILE 'HOME' ENTERED AT 15:13:38 ON 25 APR 2005)

     FILE 'CAPLUS' ENTERED AT 15:13:57 ON 25 APR 2005
               SET LINE 250
               SET DETAIL OFF
               E US2002-047251/AP,PRN 25
               SET NOTICE 1000 SEARCH
L1           1 SEA ABB=ON  US2002-47251/AP
               SET NOTICE LOGIN SEARCH
               SET LINE LOGIN
               SET DETAIL LOGIN
               D SCAN
               E 3/SC
               E 10/SC
               E 11/SC

     FILE 'REGISTRY' ENTERED AT 15:16:40 ON 25 APR 2005
               E APYRASE/CN
L2          78 SEA ABB=ON  APYRASE?/CN

     FILE 'CAPLUS' ENTERED AT 15:17:20 ON 25 APR 2005
               E PLANT/CT
               E E3+ALL
               E PLANTS/CT
               E E3+ALL
L3       53514 SEA ABB=ON  PLANT#/CT OR EMBRYOPHYTA/CT
               E HERBICIDE RESISTANCE/CT
               E E3+ALL
L4        3894 SEA ABB=ON  HERBICIDE RESISTANCE/CT
               E DRUG RESISTANCE+ALL/CT
L5       25952 SEA ABB=ON  DRUG RESISTANCE/CT
L6        7729 SEA ABB=ON  PLANT CELL/CT
L7         873 SEA ABB=ON  L2
L8       76916 SEA ABB=ON  PHOSPHATASE#/OBI OR ECTOPHOSPHATASE#/OBI
L9        7382 SEA ABB=ON  (L8 OR L7)(L)(INHIB?/OBI OR BLOCK?/OBI OR ANTAG?/OB
               I)
L10         20 SEA ABB=ON  (L3 OR L6) AND L9
L11      44653 SEA ABB=ON  EXTRACELLULAR?/OBI OR EXTRA CELLULAR?/OBI
L12        482 SEA ABB=ON  L8(L)L11
L13         51 SEA ABB=ON  L9 AND L12
L14          0 SEA ABB=ON  L13 AND (L3 OR L6)
               D SCAN L1

     FILE 'REGISTRY' ENTERED AT 15:23:32 ON 25 APR 2005
               E PHOSPHATASE/CN
L15          1 SEA ABB=ON  PHOSPHATASE/CN

     FILE 'CAPLUS' ENTERED AT 15:23:46 ON 25 APR 2005
L16      14285 SEA ABB=ON  L15
L17          1 SEA ABB=ON  L16 AND L1
L18          2 SEA ABB=ON  (L4 OR L5) AND (L3 OR L6) AND (L7 OR L16)
               D SCAN TI
L19        372 SEA ABB=ON  L16(L)(INHIB?/OBI OR BLOCK?/OBI OR ANTAG?/OBI)
L20         77 SEA ABB=ON  (L7 AND L9)
L21         20 SEA ABB=ON  ((L7 AND L9) OR ((L8 AND L9) OR L19))AND (L3 OR
               L6)
L22         20 SEA ABB=ON  L10 AND L21
L23          2 SEA ABB=ON  (L4 OR L5) AND L22
```

```
                D SCAN TI
L24             3 SEA ABB=ON  L21 AND 9/SC,SX
                D SCAN TI
L25            13 SEA ABB=ON  L21 AND 11/SC,SX
                D SCAN TI
L26          1148 SEA ABB=ON  ABC/OBI(W)(TRANSPORT?/OBI OR BINDING/OBI)
L27            12 SEA ABB=ON  L26 AND (L3 OR L6)
L28             2 SEA ABB=ON  L26 AND (L3 OR L6) AND (L4 OR L5)
                D SCAN TI
L29            10 SEA ABB=ON  L27 NOT L28
L30          2879 SEA ABB=ON  ATP BINDING CASSETTE#/OBI
                D QUE L27
L31            30 SEA ABB=ON  (L26 OR L30) AND (L3 OR L6)
L32             4 SEA ABB=ON  L31 AND (L4 OR L5)
                D SCAN TI
L33             1 SEA ABB=ON  ANION/TI AND L32
                D SCAN
L34            22 SEA ABB=ON  L31 AND 11/SC,SX
                D SCAN L34 TI
L35             3 SEA ABB=ON  L34 AND 9/SC,SX
                D SCAN TI
L36          1604 SEA ABB=ON  ZEARALENONE/OBI
L37        125458 SEA ABB=ON  ASSAY?/OBI OR BIOASSAY?/OBI
L38             1 SEA ABB=ON  L31 AND L36
L39             2 SEA ABB=ON  L31 AND L37
                D SCAN T
L40             6 SEA ABB=ON  ATPGP1/OBI OR ATPGP 1/OBI
                D SCAN TI
L41           185 SEA ABB=ON  (L26 OR L30)(L)(DOWN REGULAT?/OBI OR DOWNREGULAT?/O
                BI OR ANTAG?/OBI OR INHIB?/OBI OR BLOCK?/OBI)
L42             7 SEA ABB=ON  L41 AND (AGR/RL)
                D SCAN TI

     FILE 'AGRICOLA' ENTERED AT 15:44:25 ON 25 APR 2005
                E DRUG RESISTANCE/CT
L43          2613 SEA ABB=ON  DRUG RESISTANCE/CT
                E HERBICIDE RESISTANCE/CT
L44          1754 SEA ABB=ON  HERBICIDE RESISTANCE/CT
                E PESTICIDE RESISTANCE/CT
L45           161 SEA ABB=ON  PESTICIDE RESISTANCE/CT
                E PLANT/CT
                E PLANTS/CT
L46        414394 SEA ABB=ON  PLANT#
                D TRIAL 1-5
                D TRIAL 5000-5002
L*** DEL        0 S "PLANT PHYSIOLOGY AND BIOCHEMISTRY"/CT
L47        287716 SEA ABB=ON  "PLANT PHYSIOLOGY AND BIOCHEMISTRY"/CC
L48           820 SEA ABB=ON  L47 AND (L43 OR L44 OR L45)
L49             3 SEA ABB=ON  ATPGP1 OR ATPGP 1
L50           305 SEA ABB=ON  ATP BINDING CASSETTE# OR  ABC(W)(TRANSPORT? OR
                BINDING)
                D TRIAL L49 1-3
L51             6 SEA ABB=ON  L48 AND L50
L52            81 SEA ABB=ON  APYRASE#
L53          6832 SEA ABB=ON  PHOSPHATASE#
                D TRIAL L51 1-6
L54             4 SEA ABB=ON  L48 AND (L52 OR L53)
                D TRIAL 1-4
L55            16 SEA ABB=ON  (L43 OR L44 OR L45) AND L50
L56             6 SEA ABB=ON  (L43 OR L44 OR L45) AND (L52 OR L53)
```

```
L57          22 SEA ABB=ON  L55 OR L56
                D TRIAL 1-22
L58         450 SEA ABB=ON  (L52 OR L53)(5A)(INHIB? OR BLOCK? OR ANTAG?)
L59         235 SEA ABB=ON  L47 AND L58
                D TRIAL 100-105
L60         169 SEA ABB=ON  L48 AND (REDUC? OR DECREAS?)
                D TRIAL 1-5
                D TRIAL 100-105
L61          24 SEA ABB=ON  (REDUC? OR DECREAS? OR REVERS?)(3A)((DRUG# OR
                HERBICID? OR PESTICID?)(2A)RESISTAN?)
                D TRIAL 1-24
                D AB 22
L62           1 SEA ABB=ON  BISAMIDE# AND L61
L63          49 SEA ABB=ON  L50(L)(INHIB? OR BLOCK? OR ANTAG? OR DOWN REGULAT?
                OR DOWNREGULAT?)
L64          21 SEA ABB=ON  L46 AND L63
                D TRIAL 1-21
L65           1 SEA ABB=ON  L64 AND DRUG#/CT
L66         142 SEA ABB=ON  L46 AND L58
L67           0 SEA ABB=ON  (L43 OR L44 OR L45) AND L66
L68           0 SEA ABB=ON  L66 AND DRUG#/CT
L69         235 SEA ABB=ON  L47 AND L58
L70         119 SEA ABB=ON  L66 AND L69
                D TRIAL 100-110
L71         109 SEA ABB=ON  L58 AND EXTRACELLULAR? OR EXTRA CELLULAR?
L72          13 SEA ABB=ON  L58 AND (EXTRACELLULAR? OR EXTRA CELLULAR?)
L73          12 SEA ABB=ON  L72 AND (L46 OR L47)
                D TRIAL 1-12
L74        5108 SEA ABB=ON  ENZYME INHIBITORS/CT
L75         264 SEA ABB=ON  (L52 OR L53) AND L74
L76         145 SEA ABB=ON  L75 AND L47
                D TRIAL 1-20

     FILE 'STNGUIDE' ENTERED AT 16:16:28 ON 25 APR 2005

     FILE 'AGRICOLA' ENTERED AT 16:23:00 ON 25 APR 2005
L77          479 SEA ABB=ON  PHOSPHOPROTEIN PHOSPHATASE/CT
                D QUE L76

     FILE 'CAPLUS' ENTERED AT 16:25:45 ON 25 APR 2005
                SAVE TEMP L18 HAN251CA1/A
                SAVE TEMP L33 HAN251CA2/A
                SAVE TEMP L39 HAN251CA3/A
                SAVE TEMP L42 HAN251CA4/A

     FILE 'AGRICOLA' ENTERED AT 16:26:17 ON 25 APR 2005
                SAVE TEMP L62 HAN251AGR1/A
                SAVE TEMP L65 HAN251AGR2/A
                D QUE L76
L78           2 SEA ABB=ON  L47 AND L52 AND L74
                D TRIAL 1-2
L79          63 SEA ABB=ON  L77 AND L74 AND L47
                D QUE
L80          63 SEA ABB=ON  L79 AND (L43 OR L44 OR L45 OR L46 OR L47 OR L48 OR
                L49 OR L50 OR L51 OR L52 OR L53 OR L54)
L81           0 SEA ABB=ON  L79 AND (L43 OR L44 OR L45)
                D TRIAL L79 1-10
L82           6 SEA ABB=ON  L79 AND SALICYLIC ACID/CT
                D TRIAL 1-6
L83           0 SEA ABB=ON  L79 AND DRUG#
```

L84 0 SEA ABB=ON L79 AND DRUG#/CT

FILE HOME

FILE CAPLUS

FILE COVERS 1907 - 25 Apr 2005 VOL 142 ISS 18
FILE LAST UPDATED: 24 Apr 2005 (20050424/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE REGISTRY
Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 24 APR 2005 HIGHEST RN 849094-71-9
DICTIONARY FILE UPDATES: 24 APR 2005 HIGHEST RN 849094-71-9

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

****
*
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*
****

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

FILE AGRICOLA

FILE COVERS 1970 TO 6 Apr 2005 (20050406/ED)

Compiled and distributed by the National Agricultural Library

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE STNGUIDE
FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Apr 22, 2005 (20050422/UP).

=> => d his full

(FILE 'HOME' ENTERED AT 14:54:58 ON 26 APR 2005)

FILE 'CABA' ENTERED AT 14:55:08 ON 26 APR 2005

```
L1          1101 SEA ABB=ON  PHOSPHATASE#(5A)(INHIB? OR BLOCK? OR ANTAG?)
L*** DEL   28142 S (DRUG# OR MULTIDRUG# OR HERBICID? OR PESTICID?)(3A)(RESIST? O
L2         28748 SEA ABB=ON  (DRUG# OR MULTIDRUG# OR HERBICID? OR PESTICID?)(3A)
                 (RESIST? OR TOLERA?)
L3           320 SEA ABB=ON  ABC(W)(TRANSPORTER# OR BINDING CASSETTE#)
L4           339 SEA ABB=ON  ATP BINDING CASSETTE#
L5             7 SEA ABB=ON  ATPGP1 OR ATPGP 1
                 D TRIAL 1-7
L6           149 SEA ABB=ON  APYRASE#
L7       1949137 SEA ABB=ON  PLANT#
L8           504 SEA ABB=ON  L1 AND L7
L9          8789 SEA ABB=ON  L7 AND L2
L10          134 SEA ABB=ON  L7 AND L3
L11          111 SEA ABB=ON  L7 AND L4
L12           47 SEA ABB=ON  L7 AND L6
                 D TRIAL 30-40
L13      1711551 SEA ABB=ON  PLANTS/BT
L14           45 SEA ABB=ON  L6 AND L13
L15            8 SEA ABB=ON  EFFECT? AND L14
                 D TRIAL 1-8
L16            2 SEA ABB=ON  L15 AND (REAGENTS OR REST)/TI
L17           37 SEA ABB=ON  L14 NOT L15
                 D TRIAL 1-37
L18          273 SEA ABB=ON  L1 AND L13 AND (EFFECT? OR AFFECT? OR COMPOUND#)
                 D TRIAL 1-20
L19        52201 SEA ABB=ON  ENZYME ACTIVITY/CT
L20          114 SEA ABB=ON  L18 AND L19
                 D TRIAL 1-20
L21        17035 SEA ABB=ON  EXTRACELLULAR? OR EXTRA CELLULAR?
L22            6 SEA ABB=ON  L1 AND L13 AND L19 AND L21
                 D TRIAL 1-6
                 D TRIAL L20 40-50
L23         6293 SEA ABB=ON  ENZYME INHIBITORS/CT
L24           34 SEA ABB=ON  L20 AND L23
                 D TRIAL 1-34
L25         5636 SEA ABB=ON  PLANT TOXICOLOGY/CC
                 D QUE L24
L26            3 SEA ABB=ON  L18 AND L19 AND L23 AND L25
                 D TRIAL 1-3
L27         1175 SEA ABB=ON  ENZYMES/CT AND INHIBITORS/CT
L28            3 SEA ABB=ON  L18 AND L19 AND (L23 OR L27) AND L25
L29         7419 SEA ABB=ON  L2 AND L13
                 D TRIAL 500-510
L30        29399 SEA ABB=ON  "PESTICIDE AND DRUG RESISTANCE"/CC
```

```
L31        3463 SEA ABB=ON  L29 AND L30
                D TRIAL 300-310
L32        8049 SEA ABB=ON  (REDUC? OR DECREAS?)(3A)(TOLERA? OR RESIST?)
L33         124 SEA ABB=ON  L31 AND L32
                D TRIAL 1-10
L34           2 SEA ABB=ON  L33 AND CLODINAFOP
                D AB 1-2
                D TRIAL L33 100-110
                D TRIAL L33 1-99, 111-124

     FILE 'STNGUIDE' ENTERED AT 15:33:37 ON 26 APR 2005

     FILE 'CABA' ENTERED AT 16:09:57 ON 26 APR 2005
L35           8 SEA ABB=ON  L33 AND (LOLIUM OR CROSS OR CRUS)/TI
                D TRIAL 1-8
L36           1 SEA ABB=ON  L33 AND (MALTHION OR CRUS)/TI
L37           2 SEA ABB=ON  L33 AND (MALATHION OR CRUS)/TI
L38          88 SEA ABB=ON  L3 AND L13
L39          12 SEA ABB=ON  L3(5A)(INHIB? OR BLOCK? OR ANTAG? OR DOWN REGULAT?
                OR DOWNREGULAT?)
                D TRIAL 1-12
                D QUE
L40           3 SEA ABB=ON  L39 AND L13
                D TRIAL 1-3
L41      195331 SEA ABB=ON  PLANT PATHOLOGY/CT
L42           2 SEA ABB=ON  L39 AND L41

     FILE 'BIOSIS' ENTERED AT 16:20:45 ON 26 APR 2005
L43      112304 SEA ABB=ON  PHOSPHATASE#
L44        1007 SEA ABB=ON  APYRASE#
L45        3594 SEA ABB=ON  ABC(W)(TRANSPORTER# OR BINDING CASSETTE#) OR ATP
                BINDING CASSETTE#
L46       69908 SEA ABB=ON  (DRUG# OR MULTIDRUG# OR HERBICID? OR PESTICID?)(3A)
                (RESIST? OR TOLERA?)
L47     2332817 SEA ABB=ON  PLANT#
L48       13369 SEA ABB=ON  L43 AND L47
L49         521 SEA ABB=ON  WHEAT AND L48
                E PLANT/CT
                E PLANTS/CT
                E PLANTS/IT
L50     2257562 SEA ABB=ON  PLANTS/IT
L51       10647 SEA ABB=ON  (L43 OR L44)(5A)(INHIB? OR BLOCK? OR ANTAG?)
L52        1045 SEA ABB=ON  L51 AND L47
L53        1018 SEA ABB=ON  L51 AND L50
L54         516 SEA ABB=ON  (AFFECT? OR EFFECT?) AND L53
L55          61 SEA ABB=ON  L45(3A)((INHIB? OR BLOCK? OR ANTAG? OR DOWN
                REGULAT? OR DOWNREGULAT?))
L56          11 SEA ABB=ON  L55 AND L50
                D SCAN

     FILE 'STNGUIDE' ENTERED AT 16:33:21 ON 26 APR 2005

     FILE 'BIOSIS' ENTERED AT 16:36:56 ON 26 APR 2005
L57           5 SEA ABB=ON  L56 AND (YEAST OR FLU OR EFFLUX OR C)/TI
L58        1425 SEA ABB=ON  L46(8A)(REDUC? OR DECREAS?)
L59        4004 SEA ABB=ON  L46(8A)(EFFECT? OR AFFECT?)
L60         485 SEA ABB=ON  (L58 OR L59) AND L50
L61         154 SEA ABB=ON  L58 AND L50
L62         143 SEA ABB=ON  L61 NOT CANDIDA
L63       11799 SEA ABB=ON  (GROWTH OR YIELD#)(A)REDUC?
```

```
L64          129 SEA ABB=ON  L62 NOT L63
L65            0 SEA ABB=ON  L53 AND L64
L66        47391 SEA ABB=ON  DECREAS?/TI
L67           96 SEA ABB=ON  L58 AND L66
                 D QUE
L68            5 SEA ABB=ON  L58 AND L66 AND L50
                 D SCAN
L69       182079 SEA ABB=ON  EXTRACELLULAR? OR EXTRA CELLULAR? OR ECTO
L70           44 SEA ABB=ON  L69 AND L50 AND L51
                 D SCAN

     FILE 'STNGUIDE' ENTERED AT 16:46:42 ON 26 APR 2005

     FILE 'BIOSIS' ENTERED AT 16:50:29 ON 26 APR 2005
L71            3 SEA ABB=ON  L70 AND (POLLEN OR SYSTEMIN)/TI
                 D AB 1-3
L72          196 SEA ABB=ON  L46(L)REDUC?/TI
L73           15 SEA ABB=ON  L50 AND L72
                 D SCAN

     FILE 'STNGUIDE' ENTERED AT 16:53:30 ON 26 APR 2005

     FILE 'CAPLUS' ENTERED AT 16:54:31 ON 26 APR 2005
                 ACT HAN251CA1/A
                 ---------
L74 (         78)SEA ABB=ON  APYRASE?/CN
L75 (      53514)SEA ABB=ON  PLANT#/CT OR EMBRYOPHYTA/CT
L76 (       3894)SEA ABB=ON  HERBICIDE RESISTANCE/CT
L77 (      25952)SEA ABB=ON  DRUG RESISTANCE/CT
L78 (       7729)SEA ABB=ON  PLANT CELL/CT
L79 (        873)SEA ABB=ON  L74
L80 (          1)SEA ABB=ON  PHOSPHATASE/CN
L81 (      14285)SEA ABB=ON  L80
L82            2 SEA ABB=ON  (L76 OR L77) AND (L75 OR L78) AND (L79 OR L81)
                 ---------
                  ACT HAN251CA2/A
                 ---------
L83 (      53514)SEA ABB=ON  PLANT#/CT OR EMBRYOPHYTA/CT
L84 (       3894)SEA ABB=ON  HERBICIDE RESISTANCE/CT
L85 (      25952)SEA ABB=ON  DRUG RESISTANCE/CT
L86 (       7729)SEA ABB=ON  PLANT CELL/CT
L87 (       1148)SEA ABB=ON  ABC/OBI(W)(TRANSPORT?/OBI OR BINDING/OBI)
L88 (       2879)SEA ABB=ON  ATP BINDING CASSETTE#/OBI
L89 (         30)SEA ABB=ON  (L87 OR L88) AND (L83 OR L86)
L90 (          4)SEA ABB=ON  L89 AND (L84 OR L85)
L91            1 SEA ABB=ON  ANION/TI AND L90
                 ---------
                  ACT HAN251CA3/A
                 ---------
L92 (      53514)SEA ABB=ON  PLANT#/CT OR EMBRYOPHYTA/CT
L93 (       7729)SEA ABB=ON  PLANT CELL/CT
L94 (       1148)SEA ABB=ON  ABC/OBI(W)(TRANSPORT?/OBI OR BINDING/OBI)
L95 (       2879)SEA ABB=ON  ATP BINDING CASSETTE#/OBI
L96 (         30)SEA ABB=ON  (L94 OR L95) AND (L92 OR L93)
L97 (     125458)SEA ABB=ON  ASSAY?/OBI OR BIOASSAY?/OBI
L98            2 SEA ABB=ON  L96 AND L97
                 ---------
                  ACT HAN251CA4/A
                 ---------
L99(       1148)SEA FILE=CAPLUS ABB=ON  ABC/OBI(W)(TRANSPORT?/OBI OR BINDING/OB
```

```
L100(      2879)SEA FILE=CAPLUS ABB=ON  ATP BINDING CASSETTE#/OBI
L101(       185)SEA FILE=CAPLUS ABB=ON  (L99 OR L100)(L)(DOWN REGULAT?/OBI OR
L102          7 SEA ABB=ON  L101 AND (AGR/RL)
               ---------

     FILE 'AGRICOLA' ENTERED AT 16:54:35 ON 26 APR 2005
                ACT HAN251AGR1/A
               ---------
L103(        24)SEA FILE=AGRICOLA ABB=ON  (REDUC? OR DECREAS? OR REVERS?)(3A)((
L104          1 SEA ABB=ON  BISAMIDE# AND L103
               ---------
                ACT HAN251AGR2/A
               ---------
L105(     414394)SEA FILE=AGRICOLA ABB=ON  PLANT#
L106(        305)SEA FILE=AGRICOLA ABB=ON  ATP BINDING CASSETTE# OR  ABC(W)(TRAN
L107(         49)SEA FILE=AGRICOLA ABB=ON  L106(L)(INHIB? OR BLOCK? OR ANTAG? OR
L108(         21)SEA FILE=AGRICOLA ABB=ON  L105 AND L107
L109          1 SEA ABB=ON  L108 AND DRUG#/CT
               ---------

     FILE 'STNGUIDE' ENTERED AT 16:54:46 ON 26 APR 2005

     FILE 'CAPLUS' ENTERED AT 16:56:36 ON 26 APR 2005
                D QUE L102
                D QUE L98
                D QUE L91
                D QUE L82
L110         11 SEA ABB=ON  L102 OR L98 OR L91 OR L82

     FILE 'AGRICOLA' ENTERED AT 16:56:38 ON 26 APR 2005
                D QUE L104
                D QUE L109
L111          2 SEA ABB=ON  L104 OR L109

     FILE 'CABA' ENTERED AT 16:56:40 ON 26 APR 2005
                D QUE L16
                D QUE L28
                D QUE L37
                D QUE L42
L112          9 SEA ABB=ON  L16 OR L28 OR L37 OR L42

     FILE 'BIOSIS' ENTERED AT 16:56:42 ON 26 APR 2005
                D QUE L57
                D QUE L71
L113          8 SEA ABB=ON  L57 OR L71

     FILE 'AGRICOLA, CABA, CAPLUS, BIOSIS' ENTERED AT 16:57:07 ON 26 APR 2005
L114         29 DUP REM L111 L112 L110 L113 (1 DUPLICATE REMOVED)
                     ANSWERS '1-2' FROM FILE AGRICOLA
                     ANSWERS '3-11' FROM FILE CABA
                     ANSWERS '12-22' FROM FILE CAPLUS
                     ANSWERS '23-29' FROM FILE BIOSIS
                D IALL 1-11
                D IBIB ED ABS HITIND 12-22
                D IALL 23-29

     FILE 'HOME' ENTERED AT 16:57:31 ON 26 APR 2005


     FILE HOME
```

FILE CABA
FILE COVERS 1973 TO 7 Apr 2005 (20050407/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

The CABA file was reloaded 7 December 2003. Enter HELP RLOAD for details.

FILE STNGUIDE
FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Apr 22, 2005 (20050422/UP).

FILE BIOSIS
FILE COVERS 1969 TO DATE.
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 20 April 2005 (20050420/ED)

FILE RELOADED: 19 October 2003.

FILE CAPLUS

FILE COVERS 1907 - 26 Apr 2005 VOL 142 ISS 18
FILE LAST UPDATED: 25 Apr 2005 (20050425/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE AGRICOLA

FILE COVERS 1970 TO 6 Apr 2005 (20050406/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=>

10/047,251

Search Request:

1. Please do a structure search for each of the attached compounds with the modifications that I have specified. Where possible, I have indicated a structural feature common to all of the attached compounds so that you may be able to consolidate the compounds into the fewest searches possible.

2. Please see if the compounds from your search results have been used in the following methods:

a. Does the compound inhibit any phosphatase?
b. Does the compound decrease drug resistance in plants or mammals?
c. Have the compounds ever been administered (i.e. sprayed, applied, etc.) to a plant such as peas, carrots, flowers, rice, wheat, any plant that you can think of.
d. Have any of the compounds been used to inhibit (down-regulate, antagonist, etc) an ABC transporter (also known as an ABC-binding cassette) in a cell?

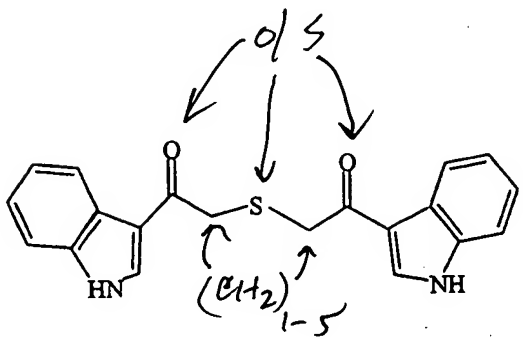
For the plants, the plant can be in a cell culture.

Thanks. Please call me if you have any questions 2-2508.

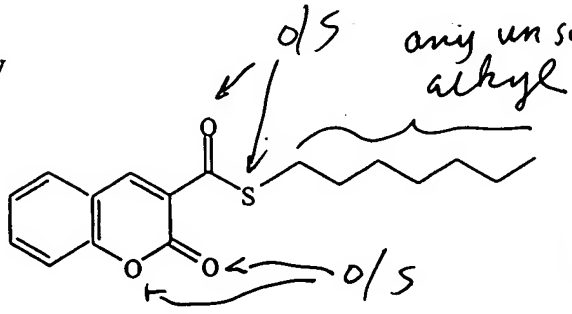
Susan

no common STR feature

V

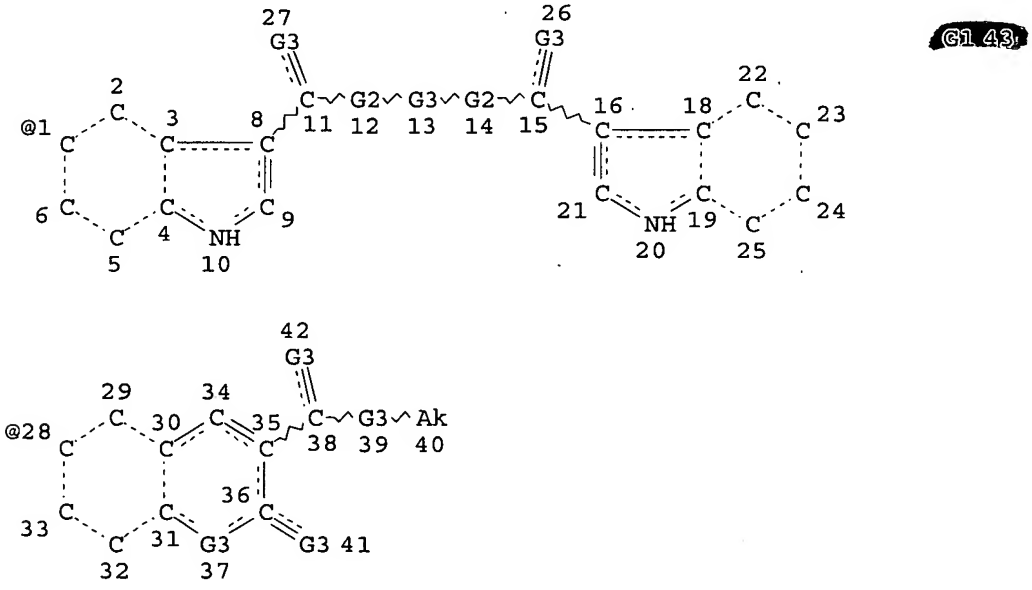


XIV



```
=> fil reg; d stat que l18
FILE 'REGISTRY' ENTERED AT 17:10:28 ON 25 APR 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:   24 APR 2005  HIGHEST RN 849094-71-9
DICTIONARY FILE UPDATES:  24 APR 2005  HIGHEST RN 849094-71-9

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

**********************************************************************
*                                                                    *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added,    *
* effective March 20, 2005.  A new display format, IDERL, is now     *
* available and contains the CA role and document type information.  *
*                                                                    *
**********************************************************************

Crossover limits have been increased.  See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html
```

L3 STR



VAR G1=1/28
REP G2=(1-5) CH2
VAR G3=O/S
NODE ATTRIBUTES:
CONNECT IS E1 RC AT 40
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 41

STEREO ATTRIBUTES: NONE
L15 312262 SEA FILE=REGISTRY ABB=ON (2 333.151/RID) OR (591.146/RID OR 591.261/RID) (bonds unspecified in RIDs)
L18 816 SEA FILE=REGISTRY SUB=L15 SSS FUL L3

100.0% PROCESSED 294172 ITERATIONS 816 ANSWERS
SEARCH TIME: 00.00.04

=> fil capl; d que nos l33; d que nos l34; d que nos l35; d que nos l37
FILE 'CAPLUS' ENTERED AT 17:10:42 ON 25 APR 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

FILE COVERS 1907 - 25 Apr 2005 VOL 142 ISS 18
FILE LAST UPDATED: 24 Apr 2005 (20050424/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.
'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE

L3 STR
L15 312262 SEA FILE=REGISTRY ABB=ON (2 333.151/RID) OR (591.146/RID OR 591.261/RID)
L18 816 SEA FILE=REGISTRY SUB=L15 SSS FUL L3
L20 1 SEA FILE=REGISTRY ABB=ON PHOSPHATASE/CN
L21 555 SEA FILE=CAPLUS ABB=ON L18
L22 14285 SEA FILE=CAPLUS ABB=ON L20
L23 3894 SEA FILE=CAPLUS ABB=ON HERBICIDE RESISTANCE/CT
L24 25952 SEA FILE=CAPLUS ABB=ON DRUG RESISTANCE/CT
L25 7729 SEA FILE=CAPLUS ABB=ON PLANT CELL/CT
L26 53514 SEA FILE=CAPLUS ABB=ON PLANT#/CT OR EMBRYOPHYTA/CT

```
L27      321071 SEA FILE=CAPLUS ABB=ON  PEA#/OBI OR CARROT#/OBI OR RICE/OBI OR
                WHEAT/OBI OR CORN/OBI OR SOYBEAN#/OBI OR SOY BEAN#/OBI
L28       75717 SEA FILE=CAPLUS ABB=ON  ZEA MAYS/OBI OR MAIZE/OBI OR GLYCINE
                MAX/OBI OR TRITICUM/OBI OR ORYZA SATIVA/OBI OR DAUCUS CAROTA/OB
                I OR PISUM SATIVUM/OBI
L29       31428 SEA FILE=CAPLUS ABB=ON  CROP#/OBI
L30        1084 SEA FILE=CAPLUS ABB=ON  ABC/OBI(W)(TRANSPORTER#/OBI OR BINDING
                CASSETTE#/OBI)
L31        2879 SEA FILE=CAPLUS ABB=ON  ATP BINDING CASSETTE#/OBI
L32        2483 SEA FILE=CAPLUS ABB=ON  DRUG#/OBI(L)SUSCEPTIB?/OBI
L33           9 SEA FILE=CAPLUS ABB=ON  L21 AND (L22 OR L23 OR L24 OR L25 OR
                L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR L32)


L3              STR
L15      312262 SEA FILE=REGISTRY ABB=ON  (2 333.151/RID) OR (591.146/RID OR
                591.261/RID)
L18         816 SEA FILE=REGISTRY SUB=L15 SSS FUL L3
L21         555 SEA FILE=CAPLUS ABB=ON  L18
L34           4 SEA FILE=CAPLUS ABB=ON  L21(L)AGR/RL
```

Role AGR = agricultural use

```
L3              STR
L15      312262 SEA FILE=REGISTRY ABB=ON  (2 333.151/RID) OR (591.146/RID OR
                591.261/RID)
L18         816 SEA FILE=REGISTRY SUB=L15 SSS FUL L3
L21         555 SEA FILE=CAPLUS ABB=ON  L18
L35          11 SEA FILE=CAPLUS ABB=ON  5/SC,SX AND L21
```

Section code 5 = Agrochemical bioregulators

```
L3              STR
L15      312262 SEA FILE=REGISTRY ABB=ON  (2 333.151/RID) OR (591.146/RID OR
                591.261/RID)
L18         816 SEA FILE=REGISTRY SUB=L15 SSS FUL L3
L21         555 SEA FILE=CAPLUS ABB=ON  L18
L36       23905 SEA FILE=CAPLUS ABB=ON  15A/SC,SX
L37           3 SEA FILE=CAPLUS ABB=ON  L21 AND L36
```

- Section code 15A = pesticides & crop-control agents

```
=> s l33 or l34 or l35 or l37; fil uspatf; d que nos l50; fil biosis toxcenter; d
que nos l62
L63          17 L33 OR L34 OR L35 OR L37

FILE 'USPATFULL' ENTERED AT 17:11:08 ON 25 APR 2005
CA INDEXING COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

FILE COVERS 1971 TO PATENT PUBLICATION DATE: 21 Apr 2005 (20050421/PD)
FILE LAST UPDATED: 21 Apr 2005 (20050421/ED)
HIGHEST GRANTED PATENT NUMBER: US6883176
HIGHEST APPLICATION PUBLICATION NUMBER: US2005086720
CA INDEXING IS CURRENT THROUGH 21 Apr 2005 (20050421/UPCA)
ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 21 Apr 2005 (20050421/PD)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Feb 2005
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Feb 2005

>>>  USPAT2 is now available.  USPATFULL contains full text of the     <<<
```

>>> original, i.e., the earliest published granted patents or <<<
>>> applications. USPAT2 contains full text of the latest US <<<
>>> publications, starting in 2001, for the inventions covered in <<<
>>> USPATFULL. A USPATFULL record contains not only the original <<<
>>> published document but also a list of any subsequent <<<
>>> publications. The publication number, patent kind code, and <<<
>>> publication date for all the US publications for an invention <<<
>>> are displayed in the PI (Patent Information) field of USPATFULL <<<
>>> records and may be searched in standard search fields, e.g., /PN, <<<
>>> /PK, etc. <<<

>>> USPATFULL and USPAT2 can be accessed and searched together <<<
>>> through the new cluster USPATALL. Type FILE USPATALL to <<<
>>> enter this cluster. <<<
>>> <<<
>>> Use USPATALL when searching terms such as patent assignees, <<<
>>> classifications, or claims, that may potentially change from <<<
>>> the earliest to the latest publication. <<<

This file contains CAS Registry Numbers for easy and accurate substance identification.

L3 STR
L15 312262 SEA FILE=REGISTRY ABB=ON (2 333.151/RID) OR (591.146/RID OR 591.261/RID)
L18 816 SEA FILE=REGISTRY SUB=L15 SSS FUL L3
L20 1 SEA FILE=REGISTRY ABB=ON PHOSPHATASE/CN
L38 80 SEA FILE=USPATFULL ABB=ON L18
L39 564 SEA FILE=USPATFULL ABB=ON L20
L40 834 SEA FILE=USPATFULL ABB=ON HERBICIDE RESISTANCE/CT
L41 1064 SEA FILE=USPATFULL ABB=ON DRUG RESISTANCE/CT
L42 2528 SEA FILE=USPATFULL ABB=ON PLANT CELL/CT
L43 3334 SEA FILE=USPATFULL ABB=ON PLANT#/CT OR EMBRYOPHYTA/CT
L44 13658 SEA FILE=USPATFULL ABB=ON (PEA# OR CARROT# OR RICE OR WHEAT OR CORN OR SOYBEAN# OR SOY BEAN#)/IT
L45 89 SEA FILE=USPATFULL ABB=ON (ABC(W)(TRANSPORTER# OR BINDING CASSETTE#))/IT,TI,AB,CLM
L46 214 SEA FILE=USPATFULL ABB=ON (ATP BINDING CASSETTE#)/IT,TI,AB,CLM
L47 249 SEA FILE=USPATFULL ABB=ON (DRUG#(L)SUSCEPTIB?)/IT
L48 652 SEA FILE=USPATFULL ABB=ON CROP#/IT
L49 4659 SEA FILE=USPATFULL ABB=ON (ZEA MAYS OR MAIZE OR GLYCINE MAX OR TRITICUM OR ORYZA SATIVA OR DAUCUS CAROTA OR PISUM SATIVUM)/IT
L50 4 SEA FILE=USPATFULL ABB=ON L38 AND (L39 OR L40 OR L41 OR L42 OR L43 OR L44 OR L45 OR L46 OR L47 OR L48 OR L49)

FILE 'BIOSIS' ENTERED AT 17:11:08 ON 25 APR 2005
Copyright (c) 2005 The Thomson Corporation

FILE 'TOXCENTER' ENTERED AT 17:11:08 ON 25 APR 2005
COPYRIGHT (C) 2005 ACS

L3 STR
L15 312262 SEA FILE=REGISTRY ABB=ON (2 333.151/RID) OR (591.146/RID OR 591.261/RID)

```
L18          816 SEA FILE=REGISTRY SUB=L15 SSS FUL L3
L20            1 SEA FILE=REGISTRY ABB=ON  PHOSPHATASE/CN
L51           60 SEA L18
L52        20754 SEA L20
L53       167544 SEA PHOSPHATASE#
L54         1357 SEA APYRASE#
L55       121731 SEA (SUSCEPTIB? OR RESIST?)(5A)(DRUG# OR MULTIDRUG# OR
                 HERBICID? OR PESTICID?)
L56      2820856 SEA PLANT#
L57       286201 SEA CROP#
L58       679166 SEA PEA# OR CARROT# OR RICE OR WHEAT OR CORN OR SOYBEAN# OR
                 SOY BEAN#
L59         2947 SEA ABC(W)(TRANSPORTER# OR BINDING CASSETTE#)
L60         4891 SEA (ATP BINDING CASSETTE#)
L61       171387 SEA (ZEA MAYS OR MAIZE OR GLYCINE MAX OR TRITICUM OR ORYZA
                 SATIVA OR DAUCUS CAROTA OR PISUM SATIVUM)
L62            8 SEA L51 AND (L52 OR L53 OR L54 OR L55 OR L56 OR L57 OR L58 OR
                 L59 OR L60 OR L61)

=> dup rem l63,l50,l62
FILE 'CAPLUS' ENTERED AT 17:11:18 ON 25 APR 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'USPATFULL' ENTERED AT 17:11:18 ON 25 APR 2005
CA INDEXING COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'BIOSIS' ENTERED AT 17:11:18 ON 25 APR 2005
Copyright (c) 2005 The Thomson Corporation

FILE 'TOXCENTER' ENTERED AT 17:11:18 ON 25 APR 2005
COPYRIGHT (C) 2005 ACS
PROCESSING COMPLETED FOR L63
PROCESSING COMPLETED FOR L50
PROCESSING COMPLETED FOR L62
L64           23 DUP REM L63 L50 L62 (6 DUPLICATES REMOVED)
                 ANSWERS '1-17' FROM FILE CAPLUS
                 ANSWERS '18-19' FROM FILE USPATFULL
                 ANSWERS '20-22' FROM FILE BIOSIS
                 ANSWER '23' FROM FILE TOXCENTER

=> d ibib ed abs hitstr 1-19; d ial1 20-23

L64  ANSWER 1 OF 23  CAPLUS  COPYRIGHT 2005 ACS on STN DUPLICATE 1
ACCESSION NUMBER:         2005:141200  CAPLUS
DOCUMENT NUMBER:          142:254568
TITLE:                    Methods and compositions for increasing the efficacy
                          of biologically-active ingredients such as antitumor
                          agents
INVENTOR(S):              Windsor, J. Brian; Roux, Stan J.; Lloyd, Alan M.;
                          Thomas, Collin E.
PATENT ASSIGNEE(S):       Board of Regents, the University of Texas System, USA
SOURCE:                   PCT Int. Appl., 243 pp.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:
```

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005014777	A2	20050217	WO 2003-US32667	20031016

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2002-418803P P 20021016

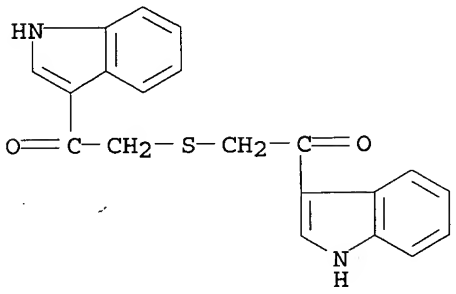
ED Entered STN: 18 Feb 2005

AB The invention provides methods and compns. for modulating the sensitivity of cells to cytotoxic compds. and other active agents. In accordance with the invention, compns. are provided comprising combinations of ectophosphatase inhibitors and active agents. Active agents include antibiotics, fungicides, herbicides, insecticides, chemotherapeutic agents, and plant growth regulators. By increasing the efficacy of active agents, the invention allows use of compns. with lowered concns. of active ingredients.

IT **139963-64-7 291536-88-4**
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(methods and compns. for increasing the efficacy of biol.-active ingredients such as antitumor agents)

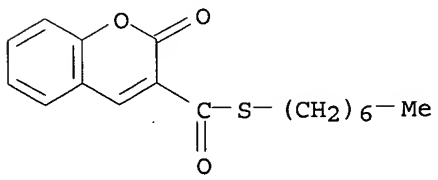
RN 139963-64-7 CAPLUS

CN Ethanone, 2,2'-thiobis[1-(1H-indol-3-yl)- (9CI) (CA INDEX NAME)



RN 291536-88-4 CAPLUS

CN 2H-1-Benzopyran-3-carbothioic acid, 2-oxo-, S-heptyl ester (9CI) (CA INDEX NAME)



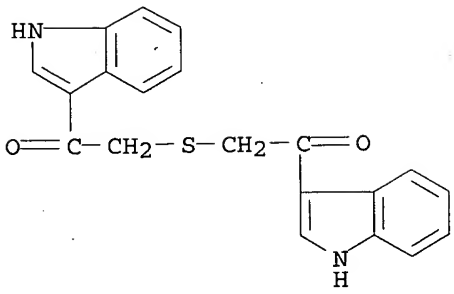
L64 ANSWER 2 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 2
ACCESSION NUMBER: 2003:23438 CAPLUS
DOCUMENT NUMBER: 138:68713
TITLE: Modulating resistance of tumor and pathogen cells to foreign compounds by manipulation of ATP gradients via regulation of **ABC transporters** and ecto-phosphatases
INVENTOR(S): Windsor, J. Brian; Roux, Stan J.; Lloyd, Alan M.
PATENT ASSIGNEE(S): University of Texas, USA
SOURCE: U.S. Pat. Appl. Publ., 41 pp., Cont.-in-part of U.S. Ser. No. 261,825.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003008369	A1	20030109	US 2002-134019	20020425
US 2002006901	A1	20020117	US 1999-244792	19990205
WO 2003091403	A2	20031106	WO 2003-US12780	20030425
WO 2003091403	A3	20041104		

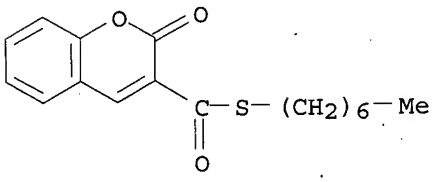
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:
US 1999-244792 A2 19990205
US 1999-261825 A2 19990303
US 2002-134019 A1 20020425

ED Entered STN: 10 Jan 2003
AB The present invention relates to methods for modulating the growth of tumor and pathogen cells and the resistance of cells to foreign compds., i.e. drugs, antibiotics, etc. by altering the ATP gradient across biol. membranes. The altering of the ATP gradient across biol. membranes is achieved through the manipulation of ecto-phosphatase (e.g., human apyrase) activity and ABC transporter mol. (e.g., Arabidopsis AtPGP-1) activity which may also be useful to confer herbicide resistance to plants, confer antibiotic resistance to bacteria, confer drug resistance to yeast cells, or to reduce resistance in cells to facilitate chemotherapeutic treatments, and to reduce resistance in bacteria and yeast. The present invention is also directed to the methods for identifying ecto-phosphatase inhibitors and uses thereof. Nineteen ecto-phosphatase inhibitory mols. are provided which are useful in reversing multi-drug resistance in Arabidopsis and yeast.
IT **139963-64-7 291536-88-4**
RL: **AGR (Agricultural use)**; PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(modulating resistance of tumor and pathogen cells to foreign compds. by manipulation of ATP gradients via regulation of **ABC transporters** and ecto-phosphatases)
RN 139963-64-7 CAPLUS
CN Ethanone, 2,2'-thiobis[1-(1H-indol-3-yl)- (9CI) (CA INDEX NAME)



RN 291536-88-4 CAPLUS
CN 2H-1-Benzopyran-3-carbothioic acid, 2-oxo-, S-heptyl ester (9CI) (CA INDEX NAME)



IT **9013-05-2**, Phosphatase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(modulating resistance of tumor and pathogen cells to foreign compds. by manipulation of ATP gradients via regulation of **ABC transporters** and ecto-phosphatases)
RN 9013-05-2 CAPLUS
CN Phosphatase (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L64 ANSWER 3 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 3
ACCESSION NUMBER: 2002:185280 CAPLUS
DOCUMENT NUMBER: 136:244034
TITLE: Method for increasing the effectiveness of antiinfective agents by inhibiting ecto-phosphatase and/or **ABC transporter** activities
INVENTOR(S): Windsor, J. Brian; Roux, Stan J.; Lloyd, Alan M.
PATENT ASSIGNEE(S): Board of Regents, the University of Texas System, USA
SOURCE: PCT Int. Appl., 65 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

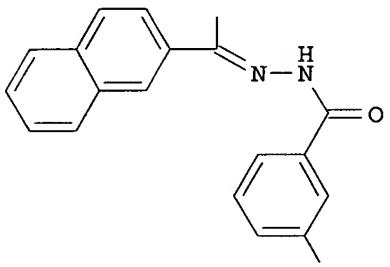
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002020726	A2	20020314	WO 2001-US28242	20010907
WO 2002020726	A3	20020606		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL,

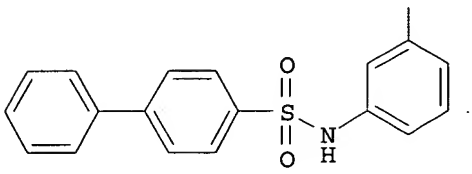
PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG,
US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2001090710	A5	20020322	AU 2001-90710		20010907
US 2002077365	A1	20020620	US 2001-949268		20010907
PRIORITY APPLN. INFO.:			US 2000-231088P	P	20000908
			WO 2001-US28242	W	20010907

ED Entered STN: 15 Mar 2002
GI



I

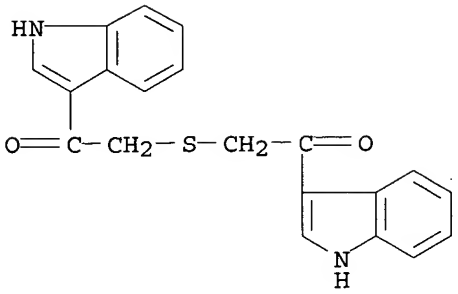


II

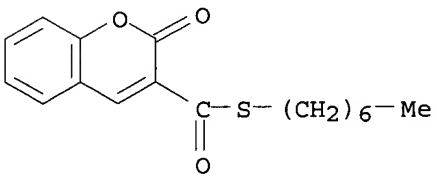
AB The present invention relates to methods for decreasing the resistance of microbial strains to antiinfectives such an antibiotics and antifungals by altering the ATP gradient across biol. membranes. The altering of the ATP gradient across biol. membranes is achieved through the inhibition of ecto-phosphatase activity and/or ABC transporter mol. activity which may be useful to reduce resistance in bacteria and yeast to aid in the treatment of certain infections and disease and to lower the concentration of antiinfectives necessary to inhibit the growth of microbial strains. Apyrase inhibitor I increased the growth inhibitory effect of the fungicide chlorothalonil by over 50%. Surflan was an equally effective weed killer against Arabidopsis thaliana at a five-fold less concentration in the presence of II.

IT **139963-64-7 291536-88-4**
RL: BSU (Biological study, unclassified); CST (Combinatorial study, unclassified); BIOL (Biological study); CMBI (Combinatorial study)
(as apyrase inhibitor; method for increasing effectiveness of antiinfective agents by inhibiting ecto-phosphatase and/or **ABC transporter** activities)

RN 139963-64-7 CAPLUS
CN Ethanone, 2,2'-thiobis[1-(1H-indol-3-yl)- (9CI) (CA INDEX NAME)



RN 291536-88-4 CAPLUS
CN 2H-1-Benzopyran-3-carbothioic acid, 2-oxo-, S-heptyl ester (9CI) (CA INDEX NAME)



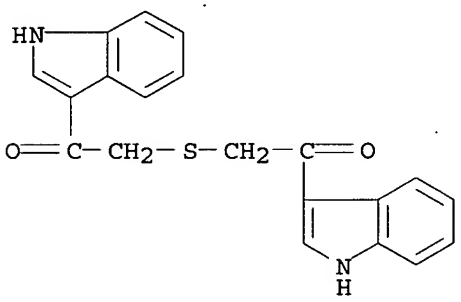
L64 ANSWER 4 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 4
ACCESSION NUMBER: 2002:833490 CAPLUS
DOCUMENT NUMBER: 137:306061
TITLE: Pesticidal and herbicidal activity through modulation of animal and plant cell membrane transport
INVENTOR(S): Windsor, J. Brian; Roux, Stan J.; Lloyd, Alan M.
PATENT ASSIGNEE(S): Board of Regents, The University of Texas System, USA
SOURCE: U.S. Pat. Appl. Publ., 41 pp., Cont.-in-part of U. S. Ser. No. 244,791.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 2002160915	A1	20021031	US 2001-793336		20010226
US 6448472	B1	20020910	US 1999-244791		19990205
PRIORITY APPLN. INFO.:			US 1999-244791	A2	19990205
			US 2000-185299P	P	20000228

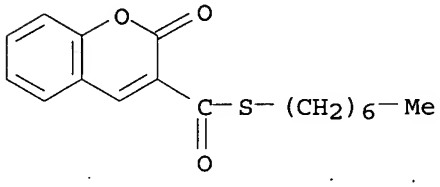
ED Entered STN: 01 Nov 2002
AB The present invention relates to the modulation of pesticidal and herbicidal activity by treatment of a membrane transport system in a cell. This entails modifying the extra-cellular phosphatases found in the membranes of these cells. By modifying the ATP gradient across the biol. membrane of a target plant, bacteria, insect or mammalian cell via inhibiting one or more extra-cellular phosphatases, it is possible to alter the sensitivity to a pesticide or herbicide. The method also comprises inhibiting an ABC transporter in the target cell. The method can also be used for identifying chems. with pesticidal activity.
IT **139963-64-7 291536-88-4**

RL: **AGR (Agricultural use)**; BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(ectophosphatase inhibitor which enhances pesticidal and herbicidal activity by altering the ATP gradient across biol. membranes)

RN 139963-64-7 CAPLUS
CN Ethanone, 2,2'-thiobis[1-(1H-indol-3-yl)- (9CI) (CA INDEX NAME)



RN 291536-88-4 CAPLUS
CN 2H-1-Benzopyran-3-carbothioic acid, 2-oxo-, S-heptyl ester (9CI) (CA INDEX NAME)



L64 ANSWER 5 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:676991 CAPLUS
DOCUMENT NUMBER: 135:222868
TITLE: Pesticide adjuvant activity through modulation of animal and plant cell membrane transport
INVENTOR(S): Windsor, J. Brian; Roux, Stan J.; Lloyd, Alan M.
PATENT ASSIGNEE(S): Board of Regents of the University of Texas System, USA
SOURCE: PCT Int. Appl., 76 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001066792	A1	20010913	WO 2001-US7423	20010307

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,

DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 2002103082	A1	20020801	US 2001-800327		20010306
CA 2373424	AA	20010913	CA 2001-2373424		20010307
PRIORITY APPLN. INFO.:			US 2000-187819P	P	20000308
			US 2001-800327	A	20010306
			WO 2001-US7423	W	20010307

ED Entered STN: 14 Sep 2001

AB The invention relates to the modulation of pesticidal and herbicidal activity by treatment of a membrane transport system in a cell. This entails modifying the extracellular phosphatases found in the membranes of these cells. By modifying the ATP gradient across the biol. membrane of a target plant, bacteria, insect or mammalian cell via inhibiting one or more extracellular phosphatases, it is possible to alter the sensitivity to a pesticide or herbicide. In preferred embodiments, the chemical moieties of the invention act as adjuvants to enhance pesticidal activity.

IT **9013-05-2**, Phosphatase
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(ecto-; pesticide adjuvants acting by inhibition of extracellular phosphatases in membranes)

RN 9013-05-2 CAPLUS

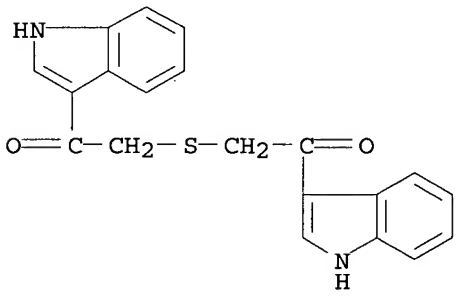
CN Phosphatase (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **139963-64-7 291536-88-4**
RL: **AGR (Agricultural use)**; BIOL (Biological study); USES (Uses)
(pesticide adjuvant acting by inhibition of extracellular phosphatases in membranes)

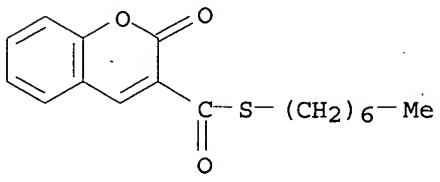
RN 139963-64-7 CAPLUS

CN Ethanone, 2,2'-thiobis[1-(1H-indol-3-yl)- (9CI) (CA INDEX NAME)



RN 291536-88-4 CAPLUS

CN 2H-1-Benzopyran-3-carbothioic acid, 2-oxo-, S-heptyl ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS

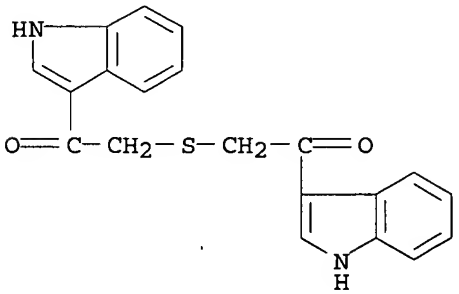
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L64 ANSWER 6 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:661570 CAPLUS
DOCUMENT NUMBER: 135:206922
TITLE: Pesticidal and herbicidal activity through modulation of animal and plant cell membrane transport
INVENTOR(S): Windsor, J. Brian; Roux, Stan J.; Lloyd, Alan M.
PATENT ASSIGNEE(S): Board of Regents, the University of Texas System, USA
SOURCE: PCT Int. Appl., 74 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

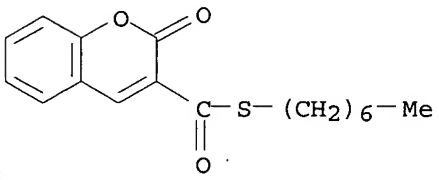
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001064859	A1	20010907	WO 2001-US6503	20010227

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2000-185299P P 20000228
ED Entered STN: 10 Sep 2001
AB The invention relates to the modulation of pesticidal and herbicidal activity by treatment of a membrane transport system in a cell. This entails modifying the extra-cellular phosphatases found in the membranes of these cells. By modifying the ATP gradient across the biol. membrane of a target plant, bacteria, insect or mammalian cell via inhibiting one or more extracellular phosphatases, it is possible to alter the sensitivity to a pesticide or herbicide. The method also comprises inhibiting an ABC transporter in the target cell. The method can also be used for identifying chems. with pesticidal activity.
IT **139963-64-7 291536-88-4**
RL: **AGR (Agricultural use)**; BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(ectophosphatase inhibitor which enhances pesticidal and herbicidal activity by altering the ATP gradient across biol. membranes)
RN 139963-64-7 CAPLUS
CN Ethanone, 2,2'-thiobis[1-(1H-indol-3-yl)- (9CI) (CA INDEX NAME)



RN 291536-88-4 CAPLUS
CN 2H-1-Benzopyran-3-carbothioic acid, 2-oxo-, S-heptyl ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L64 ANSWER 7 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:628251 CAPLUS
DOCUMENT NUMBER: 133:219782
TITLE: Genetic and epigenetic manipulation of **ABC transporters** and ecto-phosphatases for modulating drug resistance and methods for detection of ecto-phosphatase inhibitors
INVENTOR(S): Thomas, Collin E.; Windsor, J. Brian; Roux, Stan J.; Lloyd, Alan M.; Hurley, Laurence
PATENT ASSIGNEE(S): University of Texas, USA
SOURCE: PCT Int. Appl., 85 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2000052144	A1	20000908	WO 2000-US5315		20000228
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM					
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG					
EP 1185623	A1	20020313	EP 2000-913685		20000228
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO					
US 2002173031	A1	20021121	US 2002-47251		20020114
PRIORITY APPLN. INFO.:			US 1999-261825	A	19990303
			WO 2000-US5315	W	20000228

ED Entered STN: 10 Sep 2000
AB The present invention relates to methods for modulating the resistance of cells to foreign compds., i.e. drugs, antibiotics, etc. by altering the ATP gradient across biol. membranes. Altering the ATP gradient across biol. membranes is achieved through the manipulation of ecto-phosphatase activity and ABC transporter mol. activity. The above method may be useful to confer herbicide resistance to plants, antibiotic resistance to bacteria, and drug resistance to yeast cells, or to reduce resistance in

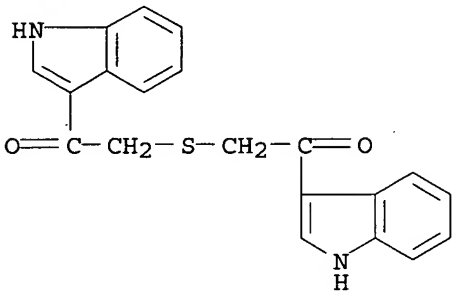
cells,bacteria, and yeast in order to facilitate chemotherapeutic treatments. The present invention is also directed to the methods for identifying ecto-phosphatase inhibitors and uses thereof. Thus, Arabidopsis thaliana has been shown to possess an ecto-apyrase and this ecto-apyrase and PGP-1 (an MDR-like protein) to have a role in MDR. Addnl., the extracellular ATP pool was shown to be critical for MDR in yeast. Screening of a combinatorial library of small mols. has resulted in identification of apyrase inhibitors.

IT **9013-05-2**, Phosphatase **139963-64-7 291536-88-4**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(genetic and epigenetic manipulation of **ABC transporters** and ecto-phosphatases for modulating drug resistance and methods for detection of ecto-phosphatase inhibitors)

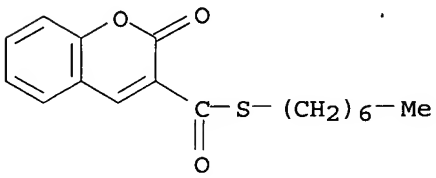
RN 9013-05-2 CAPLUS
CN Phosphatase (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 139963-64-7 CAPLUS
CN Ethanone, 2,2'-thiobis[1-(1H-indol-3-yl)- (9CI) (CA INDEX NAME)



RN 291536-88-4 CAPLUS
CN 2H-1-Benzopyran-3-carbothioic acid, 2-oxo-, S-heptyl ester (9CI) (CA INDEX NAME)



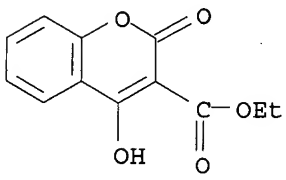
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L64 ANSWER 8 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1993:517115 CAPLUS
DOCUMENT NUMBER: 119:117115
TITLE: Preparation of 3-alkoxycarbonyl-4-hydroxycoumarins as intermediates for rodenticides
INVENTOR(S): Kakimoto, Takehiko; Hirai, Takumi
PATENT ASSIGNEE(S): Nippon Synthetic Chem Ind, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF

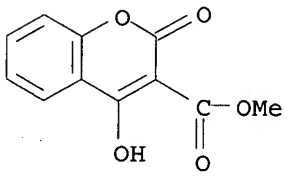
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05086048	A2	19930406	JP 1991-277254	19910926

PRIORITY APPLN. INFO.: JP 1991-277254 19910926
OTHER SOURCE(S): CASREACT 119:117115; MARPAT 119:117115
ED Entered STN: 18 Sep 1993
AB The title compds., useful as intermediates for rodenticides (no data), are prepared by reaction of acetylsalicylic acid chloride, malonic acid diesters, and Mg(OEt)2 followed by cyclization of resulting 2-(2-aetoxybenzoyl)malonic acid dialkyl esters with mineral acids using aliphatic nitriles or ketones as solvents. Mg(OEt)2 in MeCN was treated with CH2(CO2Et)2 at 80° for 2 h, mixed with acetylsalicylic acid chloride for 1 h, and the mixture was left for 1 h. Aqueous H2SO4 was added to the mixture and stirred at 70° for 60 min to give 89.8% 3-ethoxycarbonyl-4-hydroxycoumarin.
IT **1821-20-1P 13252-75-0P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, from acetylsalicylate and malonate and magnesium ethylate)
RN 1821-20-1 CAPLUS
CN 2H-1-Benzopyran-3-carboxylic acid, 4-hydroxy-2-oxo-, ethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

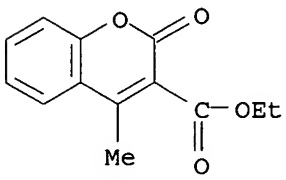


RN 13252-75-0 CAPLUS
CN 2H-1-Benzopyran-3-carboxylic acid, 4-hydroxy-2-oxo-, methyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)

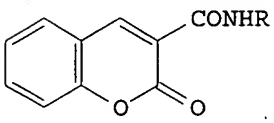


L64 ANSWER 9 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1994:457274 CAPLUS
DOCUMENT NUMBER: 121:57274
TITLE: Reactions of methyl derivatives of 2-penten-5-olide, 2-buten-4-olide, and coumarin with dicarboxylic anhydrides and with 3-formylchromones under the Perkin synthesis conditions
AUTHOR(S): Melikyan, G. S.; Lacova, M.; Kralova, K.; El-Shaaer, H. M.; Henselova, M.; Avetisyan, A. A.
CORPORATE SOURCE: Fac. Chem., Yerevan State Univ., Yerevan, 375 049,

Armenia
SOURCE: Chemical Papers (1993), 47(6), 388-92
CODEN: CHPAEG; ISSN: 0366-6352
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 06 Aug 1994
AB 4H-4-Oxo-3-(R-vinylene)chromene derivs. and 3-(R-methylene)phthalide derivs. have been prepared by condensation reactions (R = 2H,5H-2-oxo-5,5-dimethyl-3-R5-4-furyl; 2H-2-oxo-6,6-dimethyl-3-R5-5,6-dihydropyran-4-yl; 2H-2-oxo-3-R5-4-chromenyl; R5 = CN, CONH2, CO2C2H5, benzothiazolyl). Some of the prepared compds. were tested for a variety of biol. activities (for herbicidal, fungicidal, growth-regulating activity, for antifungal activity against human pathogenic dermatophytes and micromycetes, and also for their possible anti-HIV activity).
IT **51081-69-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation reactions of, under Perkin synthesis conditions)
RN 51081-69-7 CAPLUS
CN 2H-1-Benzopyran-3-carboxylic acid, 4-methyl-2-oxo-, ethyl ester (9CI) (CA INDEX NAME)



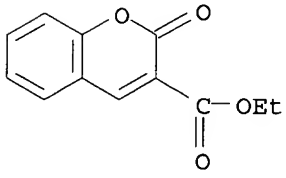
L64 ANSWER 10 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1989:407181 CAPLUS
DOCUMENT NUMBER: 111:7181
TITLE: Coumarin-3-N-substituted carboxamides with antimicrobial and insecticidal activities. Part 2
AUTHOR(S): El-Agrody, A. M.; Abdul-Ghany, A. R.; Bedair, A. H.; Ghazal, S. A.
CORPORATE SOURCE: Fac. Sci., Al-Azhar Univ., Nasr, Egypt
SOURCE: Afinidad (1988), 45(417), 447-50
CODEN: AFINAE; ISSN: 0001-9704
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 111:7181
ED Entered STN: 08 Jul 1989
GI



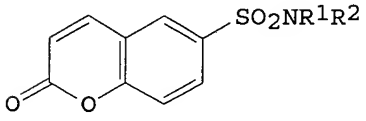
I

AB Coumarincarboxamides e.g., I (R = CH2CH2OH, CH2CHOHCH2OH, CH2CH2Cl, CH2CH2NMe2, etc.) were prepared from 3-cargethoxycoumarin. Antimicrobial and insecticidal activities of I was determined

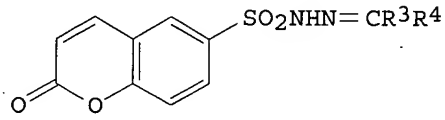
IT **1846-76-0**
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactions of)
RN 1846-76-0 CAPLUS
CN 2H-1-Benzopyran-3-carboxylic acid, 2-oxo-, ethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L64 ANSWER 11 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1989:57464 CAPLUS
DOCUMENT NUMBER: 110:57464
TITLE: The chemistry of sulfonylcoumarin derivatives
AUTHOR(S): Cremlyn, Richard J.; Clowes, Sally M.
CORPORATE SOURCE: Div. Chem. Sci., Hatfield Polytech., Hatfield/Hertfordshire, AL10 9AB, UK
SOURCE: Journal of the Chemical Society of Pakistan (1988), 10(1), 97-104
CODEN: JCSPDF; ISSN: 0253-5106
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 110:57464
ED Entered STN: 17 Feb 1989
GI



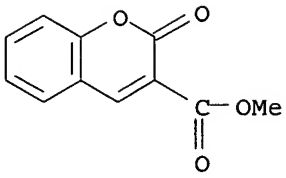
I



II

AB 6-(Chlorosulfonyl)coumarin was amidated to give amides I (R1 = H, alkyl; R2 = H, alkyl, PhCH2, tolyl; or NR1R2 = morpholino). Similarly, hydrazones II [R3 = Me, H; R4 = Me, Ph, ClC6H4, O2NC6H4; or R3R4 = (CH2)4] were prepared from the sulfonyl chloride via the resp. hydrazide. Some I and II showed fungicidal activity.

IT **21259-42-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(amidation of, by aniline)
RN 21259-42-7 CAPLUS
CN 2H-1-Benzopyran-3-carboxylic acid, 2-oxo-, methyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)

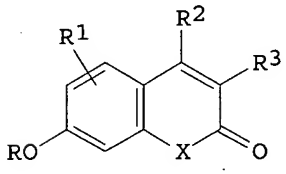


L64 ANSWER 12 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1984:630362 CAPLUS
DOCUMENT NUMBER: 101:230362
TITLE: Coumarin snd quinolinone derivatives
INVENTOR(S): Harnisch, Horst; Wolfbeis, Otto S.
PATENT ASSIGNEE(S): Bayer A.-G. , Fed. Rep. Ger.
SOURCE: Brit. UK Pat. Appl., 18 pp.
CODEN: BAXXDU
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

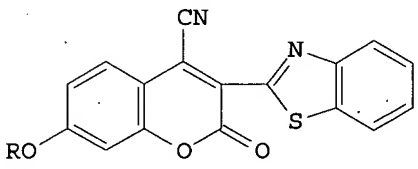
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 2133007	A1	19840718	GB 1983-33740	19831219
GB 2133007	B2	19860115		
DE 3248043	A1	19840628	DE 1982-3248043	19821224
DE 3321041	A1	19841213	DE 1983-3321041	19830610
DE 3321041	C2	19910704		

PRIORITY APPLN. INFO.: DE 1982-3248043 A 19821224
DE 1983-3321041 A 19830610

ED Entered STN: 22 Dec 1984
GI



I



II

AB Coumarin and quinolinone esters I [X = O, NR4; R = (R5O)2PO, R5O3S; R1 = H, SO3H; R2 = H, Br, Cl, CONH2, cyano; R3 = cyano, SO3H, NO2, Ph, 4-MeC6H4, HO3SC6H4, alkoxycarbonyl, R6SO2, (un)substituted CONH2, SO2NH2, heteroaryl; R4 = (di)(hydroxy)alkyl, alkoxycarbonyl; R5 = H, alkali metal, pyridinium, (un)substituted NH4; R6 = alkyl, PhCH2, Ph, 4-MeC6H4, 4-ClC6H4], useful in the photometric or fluorometric determination of phosphatase
or sulfatase (no data), were prepared Thus, benzothiazolylcoumarin II (R = H) is phosphorylated with POCl3 and treated with NaOH to give II [R = (NaO)2PO].
IT **9013-05-2**
RL: ANT (Analyte); ANST (Analytical study)
(determination of, by fluorometry or photometry, phosphate ester reagents for)
RN 9013-05-2 CAPLUS

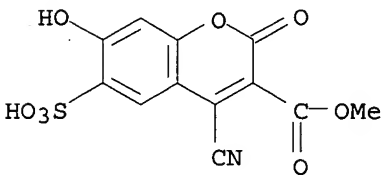
CN Phosphatase (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **93363-88-3**
RL: RCT (Reactant); RACT (Reactant or reagent)
(phosphorylation of)

RN 93363-88-3 CAPLUS

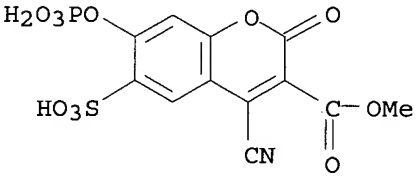
CN 2H-1-Benzopyran-3-carboxylic acid, 4-cyano-7-hydroxy-2-oxo-6-sulfo-, 3-methyl ester (9CI) (CA INDEX NAME)



IT **93363-97-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 93363-97-4 CAPLUS

CN 2H-1-Benzopyran-3-carboxylic acid, 4-cyano-2-oxo-7-(phosphonooxy)-6-sulfo-, 3-methyl ester, dipotassium salt (9CI) (CA INDEX NAME)



●2 K

L64 ANSWER 13 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1978:529706 CAPLUS
DOCUMENT NUMBER: 89:129706
TITLE: Phosphorus function addition to substituted olefins
INVENTOR(S): Teichmann, Herbert; Thierfelder, Wulf
PATENT ASSIGNEE(S): Ger. Dem. Rep.
SOURCE: Ger. (East), 19 pp. Addn. Ger. (East) 125,750.
CODEN: GEXXA8
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DD 129959	U	19780222	DD 1972-167102	19721208
PRIORITY APPLN. INFO.:			DD 1972-167102 A	19721208

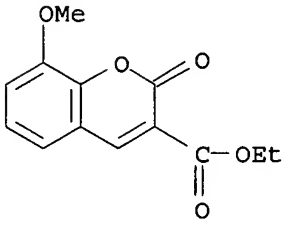
ED Entered STN: 12 May 1984

AB Thirteen plant growth regulating P acid derivs., R1n(R2O)2-

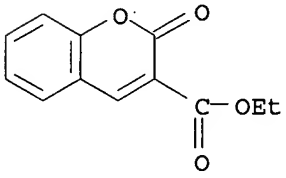
nP(O)CR3R4CHR5R6 (R1 = alkyl, aryl; R2 = alkyl; R3, R4 = H, alkyl, aryl; R5, R6 = CO2H, CO2R1, COR1, n = 0-2) were prepared by addition of R1nPX3-n (X = e.g., Cl) to R4R3C:CR5R6 followed by hydrolysis. Thus, addition of PCl3 to H2C:CHCN followed by esterification gave 56.8% NCCH2CH2P(O)(OEt)2. Similarly, PhPCl2 and m-O2NC6H4CH:C(CN)2 gave 72.9% (NC)2CHCH(C6H4NO2-m)P(O)Ph(OEt).

IT **1729-02-8 1846-76-0**
RL: RCT (Reactant); RACT (Reactant or reagent)
(addition of chlorophosphines to)

RN 1729-02-8 CAPLUS
CN 2H-1-Benzopyran-3-carboxylic acid, 8-methoxy-2-oxo-, ethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 1846-76-0 CAPLUS
CN 2H-1-Benzopyran-3-carboxylic acid, 2-oxo-, ethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L64 ANSWER 14 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1961:116930 CAPLUS
DOCUMENT NUMBER: 55:116930
ORIGINAL REFERENCE NO.: 55:21927b-h
TITLE: Photographic sensitizers
INVENTOR(S): Kendall, John David; Waddington, Henry R. J.; Duffin, George F.
PATENT ASSIGNEE(S): Ilford Ltd.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 867592		19610510	GB	

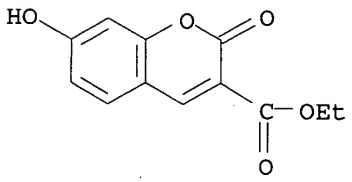
ED Entered STN: 22 Apr 2001
GI For diagram(s), see printed CA Issue.
AB The sensitizers described are 3-substituted coumarins, where the 3-substituent is C:(CH.CH)n:N.X, n = 0 or 1, X is the residue of a 5-or 6-membered heterocyclic nucleus, and the benzene ring may have 1 or more substituents selected from alkyl, aralkyl, aryl, hydroxy, alkoxy, amino,

or substituted amino groups, or halogen. PhBr 39.5 added with stirring during 15 min. to Li 4 g. in dry Et2O 35 cc. under N, refluxed 4 hrs., kept at room temperature under N overnight, treated with quinaldine 35 g. in dry Et2O 40 cc., stirred 2 hrs., treated during 0.5 hr. with ClCO2Et 31 g. in Et2O 40 cc., refluxed 2 hrs., and worked up gave 2-ethoxycarbonylmethylquinoline (II), b1.5 170-80°. 4,2-Et2N(HO)C6H3CHO (III) 16.3 g., CH2(CO2Et)2 (IV) 13 cc., EtOH 50 cc., and piperidine 0.75 cc. refluxed 4 hrs. gave 3-ethoxycarbonyl-7-diethylaminocoumarin (V), yellow plates, m. 87° (EtOH). 2,4-(HO)2C6H3CHO 27.6 g., IV 30.2 cc., EtOH 100 cc., and piperidine 2 cc. refluxed 17 hrs. yielded the 7-OH analog (VI) of V, pale yellow needles, m. 172°. 2,4-HO(MeO)C6H3CHO 8.2 g., IV 8.2 cc., EtOH 35 cc., and piperidine 0.5 cc. refluxed 2 hrs. gave the 7-MeO analog (VII) of VI, pale yellow needles, m. 137° (EtOH). VI 2.34 and o-H2NC6H4SH (VIII) 1.25 g. in Dowtherm 10 cc. refluxed 5 min. and diluted with C6H6 20 cc., the C6H6 distilled off, and the residue refluxed again 10 min., cooled, and diluted with Et2O yielded the 3-(2-benzothiazolyl) analog of VI, yellow needles, m. 305° (50% aqueous C5H5N); it sensitizes a AgCl emulsion to 5150 A. with a maximum at 4800 A. Similarly were prepared [reagents, product, color, m.p., sensitization range of AgCl emulsion, maximum (in A.) given]: the 7-Me ether of VII, yellow plates, 235° (AcOH), -, -; V, VIII, the 3-(2-benzothiazolyl) analog of V, orange needles, 204° (75% aqueous C5H5N), to 5200, 4900; VI, o-C6H4(NH2)2 (IX), the 3-(2-benzimidazolyl) analog of VI, bright yellow needles, 375° (70% aqueous C5H5N); to 5000, 4600; VI, o-H2NC6H4NHMe (X), the 3-(1-methyl-2-benzimidazolyl) analog of VI, yellow microcrystals, 340° (decomposition) (50% aqueous C5H5N), to 4700, 4800; V, IX, the 3-(2-benzimidazolyl) analog of V, buff needles, 273° (EtOH), to 5400, 4700; and V, X, the 3-(1-methyl-2-benzimidazolyl) analog of V, yellow needles, 219° (EtOH), to 5000, 4500; VI 7.02 and o-H2NC6H4OH 3.27 g. heated 2 hrs. at 170°, and the product, m. 289° (50% aqueous C5H5N), heated 0.5 hr. in Dowtherm 20 cc., cooled, and filtered yielded the 3-(2-benzoxazolyl) analog of VI, buff plates, m. 305° (50% aqueous C5H5N). II 0.54, III 0.5 g., EtOH 5 cc., and piperidine 3 drops refluxed 4 hrs. and cooled yielded the 3-(2-quinolyl) analog of V, yellow needles, m. 149-51° (EtOH).

IT **6093-71-6**, 2H-1-Benzopyran-3-carboxylic acid, 7-hydroxy-2-oxo-, ethyl ester **6093-72-7**, 2H-1-Benzopyran-3-carboxylic acid, 7-methoxy-2-oxo-, ethyl ester **28705-46-6**, 2H-1-Benzopyran-3-carboxylic acid, 7-diethylamino-2-oxo-, ethyl ester
(preparation of)

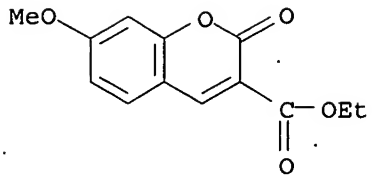
RN 6093-71-6 CAPLUS

CN 2H-1-Benzopyran-3-carboxylic acid, 7-hydroxy-2-oxo-, ethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

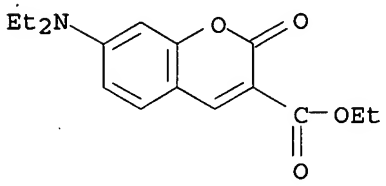


RN 6093-72-7 CAPLUS

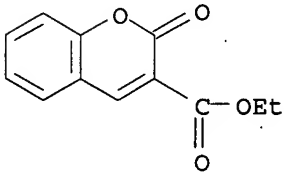
CN 2H-1-Benzopyran-3-carboxylic acid, 7-methoxy-2-oxo-, ethyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 28705-46-6 CAPLUS
CN 2H-1-Benzopyran-3-carboxylic acid, 7-(diethylamino)-2-oxo-, ethyl ester (8CI, 9CI) (CA INDEX NAME)



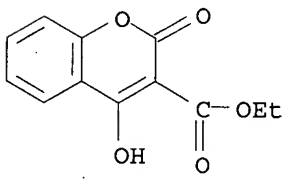
L64 ANSWER 15 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1954:19957 CAPLUS
DOCUMENT NUMBER: 48:19957
ORIGINAL REFERENCE NO.: 48:3620d-f
TITLE: The relation between the structure of coumarin and its derivatives, and their activity as germination inhibitors
AUTHOR(S): Mayer, A. M.; Evenari, M.
CORPORATE SOURCE: Hebrew Univ., Jerusalem
SOURCE: Journal of Experimental Botany (1952), 3, 246-52
CODEN: JEBOA6; ISSN: 0022-0957
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
ED Entered STN: 22 Apr 2001
AB cf. C.A. 46, 6311b. A large number of substitution derivs. of coumarin (I) were tested for activity as germination inhibitors of lettuce and wheat seeds. In every case the activity was wholly or partially removed by substitution. A number of growth regulators of the 2,4-D type acted as germination inhibitors, some being more active than I. It was concluded that the activity of I as a germination inhibitor is due to its specific structure, consisting of an unsatd. lactone linked to an unsubstituted benzene nucleus. Any change in this structure leads to partial destruction of the activity as a germination inhibitor.
IT **1846-76-0**, 2H-1-Benzopyran-3-carboxylic acid, 2-oxo-, ethyl ester (germination inhibition by)
RN 1846-76-0 CAPLUS
CN 2H-1-Benzopyran-3-carboxylic acid, 2-oxo-, ethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L64 ANSWER 16 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1957:102210 CAPLUS
DOCUMENT NUMBER: 51:102210
ORIGINAL REFERENCE NO.: 51:18453d-e
TITLE: Fungicides
INVENTOR(S): Mentzer, Charles
PATENT ASSIGNEE(S): U C L A F
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 995464		19511203	FR	

ED Entered STN: 22 Apr 2001
AB Substituted 4-hydroxy-2H-pyran-2-ones containing a 3-keto, carboxyl, or ester group are useful as fungicides and can be applied in powder form or in aqueous or organic solvents, or liberated in situ from their alkali salts. Specified compds. are 3-Actyl- and 3-cinamoyl-4-hydroxy-6-methyl 2H-pyran-2-one, 3-propionyl-4-hydroxy-6-ethyl-2H-pyran-2-one, 3-acetylbenzotetronic acid, and 4-hydroxy-3-carbethoxycoumarin. Inhibition of growth of Penicillium puberulum, Acrocylindricum commune, and Aspergillus niger is effected by dehydroacetic acid concns. of 1, 5, and 1.7 parts/100,000, resp.
IT **1821-20-1**, 2H-1-Benzopyran-3-carboxylic acid, 4-hydroxy-2-oxo-, ethyl ester
(fungicide)
RN 1821-20-1 CAPLUS
CN 2H-1-Benzopyran-3-carboxylic acid, 4-hydroxy-2-oxo-, ethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



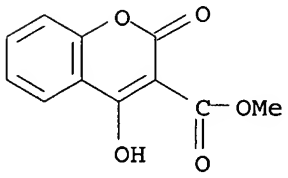
L64 ANSWER 17 OF 23 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1949:52171 CAPLUS
DOCUMENT NUMBER: 43:52171
ORIGINAL REFERENCE NO.: 43:9333i,9334a-f
TITLE: Fungistatic activity of ethylenic and acetylenic compounds. I. Effect of the affinity of the substituents for electrons upon the biological activity of ethylenic compounds
AUTHOR(S): McGowan, J. C.; Brian, P. W.; Hemming, H. G.
SOURCE: Annals of Applied Biology (1948), 35, 25-36
CODEN: AABIAV; ISSN: 0003-4746
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
ED Entered STN: 22 Apr 2001
GI For diagram(s), see printed CA Issue.
AB A study of more than 80 organic compds. with ethylene linkages assayed for fungistatic activity against Fusarium graminearum, Penicillium digitatum,

and Botrytis allii showed that fungistatic activity is associated with the tendency of substituents to withdraw electrons from the double bond (e.g., nitroethylenes and fumarates are fungistatic). IV is an exception that is not explained; neither II nor III shows similar high activity. The compds. studied were cyclohexene, styrene, trans-stilbene, Ph2C:CHPh, MeCH:CHCHO, PhCH:CHCHO, 2-furanacrolein, benzylideneacetone, 2-furfurylideneacetone, α-benzylideneacetophenone, α-2-furfurylideneacetophenone, 1-(2-furyl)-3,5-hexadien-2-one, 5-dimethylamino-1-(2-furyl)-1-penten-3-one-HCl, dehydroacetic acid, kojic acid, maleic acid, di-Et maleate, fumaric acid, Me fumarate, Et fumarate, methacrylic acid (I), Et acrylate, and the following esters of I: allyl, Bu, iso-Bu, sec-Bu, 2-ethylhexyl, Am, benzyl, phenethyl, Cl3CCH2, and MeCH2CH2CH2OCH2CH2, citraconic acid, itaconic acid, aconitic acid and its tri-Bu ester, sorbic acid, elaidic acid, (EtOOC)2C:C(COOEt)2 (II), Et methoxycrotonate, traumatic acid, cinnamic acid, Et cinnamate, 2-furanacrylic acid, Me 2-furanacrylate, Bu 2-furanacrylate, α-phenyl-2-furanacrylic acid, Et α-2-furfurylideneacetoacetate, di-Et 2-furfurylidenemalonate, PhCH:C(CN)CO2Et, β-2-furfurylidenelevulinic acid, β,δ-di-2-furfurylidenelevulinic acid, Et 2-acetyl-2-furan-2,4-pentadienoate, (2-C4H3O)CH:CHCH:C(CO2Et)2, dl-1,4-dihydro-1-naphthoic acid, 3,4-dihydro-1-naphthoic acid, 3,4-dihydro-2-naphthoic acid, dl-1,2-dihydro-2-naphthoic acid, Me 4-hydroxy-3-coumarincarboxylate, meconic acid, PhCH:CHNO2, PhCH:C(NO2)Et, p-ClC6H4CH:CHNO2, p-MeOC6H4CH:CHNO2, 3,4-(MeO)2C6H3CH:CHNO2, 3,4-MeO(HO) C6H3CH:CHNO2, 2-(2-nitrovinyl)furan, 2-(2-nitro-1-butenyl)furan, 5-(2-nitrovinyl)-2-furanmethanol, Cl2C:CHCl, Cl2C:CCl2 (III), CH2: CHCH2Br, I2C:CI2 (IV), methacrylonitrile, Ph2C:CClPh, α,α'-diethyl-4,4'-stilbenediol, (p-MeOC6H4)C(C6H4OEt-p):CBrPh, 2,2'-vinylenedifuran, 3,4-dihydro-1,2-pyran, 5-chloro-3,4-dihydro-1,2-pyran, 5-thiocyano-3,4-dihydro-1,2-pyran, MeCH.CH2.CH:CH.CO.O, phenylhydrazone of 2-furfurylideneacetone, and [(2-C4H3O)CH:CHC(Me):N]2.

IT **13252-75-0**, 2H-1-Benzopyran-3-carboxylic acid, 4-hydroxy-2-oxo-, methyl ester
(fungistatic activity of)

RN 13252-75-0 CAPLUS

CN 2H-1-Benzopyran-3-carboxylic acid, 4-hydroxy-2-oxo-, methyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



L64 ANSWER 18 OF 23 USPATFULL on STN

ACCESSION NUMBER: 2002:192012 USPATFULL

TITLE: Adjuvant activity through modulation of animal and plant cell membrane transport

INVENTOR(S): Windsor, J. Brian, Austin, TX, UNITED STATES
Roux, Stan J., Austin, TX, UNITED STATES
Lloyd, Alan M., Austin, TX, UNITED STATES

PATENT ASSIGNEE(S): Board of Regents, The University of Texas System (U.S.. corporation)

	NUMBER	KIND	DATE

Searched by Barb O'Bryen, STIC 2-2518

PATENT INFORMATION:	US 2002103082	A1	20020801
APPLICATION INFO.:	US 2001-800327	A1	20010306 (9)

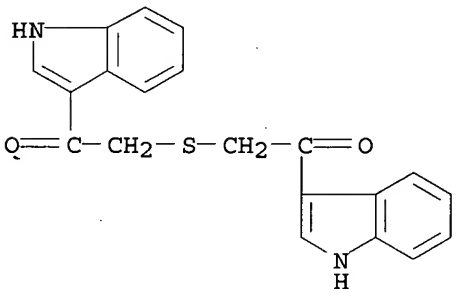
	NUMBER	DATE
PRIORITY INFORMATION:	US 2000-187819P	20000308 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: McDaniel & Associates, P.C., P.O. Box 2244, Austin, TX, 78768-2244
NUMBER OF CLAIMS: 21
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 18 Drawing Page(s)
LINE COUNT: 2066
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

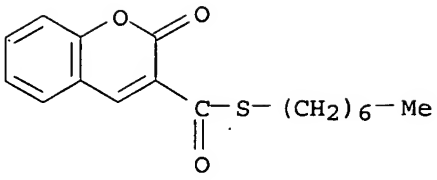
AB The present invention relates to the modulation of pesticidal and herbicidal activity by treatment of a membrane transport system in a cell. This entails modifying the extra-cellular phosphatases found in the membranes of these cells. By modifying the ATP gradient across the biological membrane of a target plant, bacteria, insect or mammalian cell via inhibiting one or more extra-cellular phosphatases, it is possible to alter the sensitivity to a pesticide or herbicide. In preferred embodiments, the chemical moieties of the invention act as adjuvants to enhance pesticidal activity.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
IT **9013-05-2**, Phosphatase
(ecto-; pesticide adjuvants acting by inhibition of extracellular phosphatases in membranes)
RN 9013-05-2 USPATFULL
CN Phosphatase (9CI) (CA INDEX NAME)

STRUCTURE DIAGRAM IS NOT AVAILABLE
IT **139963-64-7 291536-88-4**
(pesticide adjuvant acting by inhibition of extracellular phosphatases in membranes)
RN 139963-64-7 USPATFULL
CN Ethanone, 2,2'-thiobis[1-(1H-indol-3-yl)- (9CI) (CA INDEX NAME)



RN 291536-88-4 USPATFULL
CN 2H-1-Benzopyran-3-carbothioic acid, 2-oxo-, S-heptyl ester (9CI) (CA INDEX NAME)



L64 ANSWER 19 OF 23 USPATFULL on STN

ACCESSION NUMBER:	2002:149209 USPATFULL
TITLE:	Method for increasing the effectiveness of antiinfective
INVENTOR(S):	Windsor, J. Brian, Austin, TX, UNITED STATES Roux, Stan J., Austin, TX, UNITED STATES Lloyd, Alan M., Austin, TX, UNITED STATES
PATENT ASSIGNEE(S):	The University of Texas System (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2002077365	A1	20020620	
APPLICATION INFO.:	US 2001-949268	A1	20010907	(9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 2000-231088P	20000908 (60)

DOCUMENT TYPE:	Utility
FILE SEGMENT:	APPLICATION
LEGAL REPRESENTATIVE:	FULBRIGHT & JAWORSKI L.L.P., A REGISTERED LIMITED LIABILITY PARTNERSHIP, SUITE 2400, 600 CONGRESS AVENUE, AUSTIN, TX, 78701
NUMBER OF CLAIMS:	41
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	18 Drawing Page(s)
LINE COUNT:	1624

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

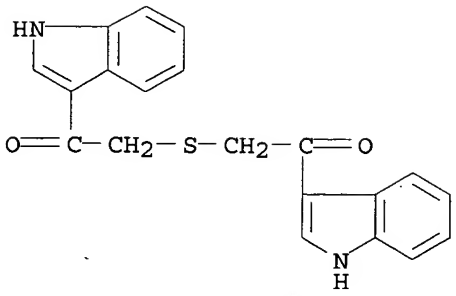
AB The present invention relates to methods for decreasing the resistance of microbial strains to antiinfectives such an antibiotics and antifungals by altering the ATP gradient across biological membranes. The altering of the ATP gradient across biological membranes is achieved through the inhibition of ecto-phosphatase activity and/or **ABC transporter** molecule activity which may be useful to reduce resistance in bacteria and yeast to aid in the treatment of certain infections and disease and to lower the concentration of antiinfectives necessary to inhibit the growth of microbial strains.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

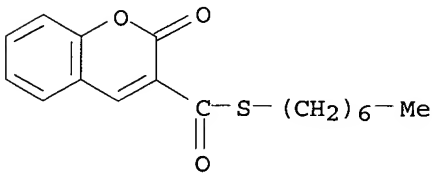
IT **139963-64-7 291536-88-4**
(as apyrase inhibitor; method for increasing effectiveness of antiinfective agents by inhibiting ecto-phosphatase and/or **ABC transporter** activities)

RN 139963-64-7 USPATFULL

CN Ethanone, 2,2'-thiobis[1-(1H-indol-3-yl)- (9CI) (CA INDEX NAME)



RN 291536-88-4 USPATFULL
CN 2H-1-Benzopyran-3-carbothioic acid, 2-oxo-, S-heptyl ester (9CI) (CA INDEX NAME)



L64 ANSWER 20 OF 23 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2003:208349 BIOSIS
DOCUMENT NUMBER: PREV200300208349
TITLE: First total synthesis of (+-)-Linderol A, a tricyclic hexahydrodibenzofuran constituent of Lindera umbellata bark, with potent inhibitory activity on melanin biosynthesis of cultured B-16 melanoma cells.
AUTHOR(S): Yamashita, Masayuki; Ohta, Nobukazu; Shimizu, Takashi; Matsumoto, Kayoko; Matsuura, Yoko; Kawasaki, Ikuo; Tanaka, Tetsuaki; Maezaki, Naoyoshi; Ohta, Shunsaku [Reprint Author]
CORPORATE SOURCE: Kyoto Pharmaceutical University, Misasagi-Nakauchicho 5, Yamashinaku, Kyoto, 607-8414, Japan
sohta@mb.kyoto-phu.ac.jp
SOURCE: Journal of Organic Chemistry, (February 21 2003) Vol. 68, No. 4, pp. 1216-1224. print.
ISSN: 0022-3263 (ISSN print).
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 30 Apr 2003
Last Updated on STN: 10 Jun 2003
ABSTRACT:The first total synthesis of (+-)-Linderol A, a hexahydrodibenzofuran constituent of Lindera umbellata bark, with potent inhibitory activity on the melanin biosynthesis of cultured B-16 melanoma cells, was achieved through 19 steps of reaction in 6.6% overall yield, in which the critical step was a tandem reaction of a 3-ethoxycarbonylcoumarin derivative with dimethylsulfoxonium methylide to yield the 2-ethoxycarbonylcyclopenta(b)benzofuran-3-ol derivative.

CONCEPT CODE: Biochemistry studies - Proteins, peptides and amino acids 10064
Tissue culture, apparatus, methods and media 32500
Pharmacognosy and pharmaceutical botany 54000
INDEX TERMS: Major Concepts
Methods and Techniques; Pharmacognosy (Pharmacology)
INDEX TERMS: Parts, Structures, & Systems of Organisms
bark
INDEX TERMS: Chemicals & Biochemicals
2-ethoxycarbonylcyclopenta[b]benzofuran-3-ol; 3-ethoxycarbonylcoumarin; dimethylsulfoxonium methylide; melanin: biosynthesis; racemic-linderol A: synthesis; tricyclic hexahydrodibenzofuran
INDEX TERMS: Methods & Equipment
cell culture: culturing techniques, laboratory techniques
ORGANISM: Classifier
Lauraceae 26245
Super Taxa
Dicotyledones; Angiospermae; Spermatophyta; Plantae
Organism Name
Lindera umbellata (species)
Taxa Notes
Angiosperms, Dicots, **Plants**, Spermatophytes, Vascular **Plants**
ORGANISM: Classifier
Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
B16 cell line (cell line): murine melanoma cell
Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates
REGISTRY NUMBER: 1846-76-0 (3-ethoxycarbonylcoumarin)
5367-24-8 (dimethylsulfoxonium methylide)
345629-43-8 (racemic-linderol A)

Structures for Biosis & Toxcenter hits printed beginning on pg 32

L64 ANSWER 21 OF 23 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1974:227002 BIOSIS
DOCUMENT NUMBER: PREV197458056696; BA58:56696
TITLE: CONDENSATION OF 3 CARBETHOXY COUMARIN WITH KETONES IN THE PRESENCE OF AMMONIUM ACETATE OR AMINES.
AUTHOR(S): SAMMOUR A; ALKADY M
SOURCE: Indian Journal of Chemistry, (1974) Vol. 12, No. 1, pp. 51-53.
CODEN: IJOCAP. ISSN: 0019-5103.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: Unavailable
CONCEPT CODE: Biochemistry methods - General 10050
Biochemistry studies - General 10060
Biophysics - Methods and techniques 10504
Pharmacology - General 22002
Plant physiology - Chemical constituents 51522
Pharmacognosy and pharmaceutical botany 54000
INDEX TERMS: Major Concepts
Biochemistry and Molecular Biophysics; Pharmacognosy (Pharmacology)

Searched by Barb O'Bryen, STIC 2-2518

INDEX TERMS: Miscellaneous Descriptors
IR SPECTRA
ORGANISM: Classifier
Plantae 11000
Super Taxa
Plantae
Taxa Notes
Plants
REGISTRY NUMBER: 631-61-8 (AMMONIUM ACETATE)
18416-76-0 (3 CARBETHOXY COUMARIN)

L64 ANSWER 22 OF 23 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1974:168647 BIOSIS
DOCUMENT NUMBER: PREV197457068347; BA57:68347
TITLE: REACTIONS BETWEEN GRIGNARD REAGENTS AND ETHYL-4-METHYL-3 COUMARINCARBOXYLATE.
AUTHOR(S): HOLMBERG G-A; MALMSTROM F; WENNSTROM U
SOURCE: Acta Chemica Scandinavica, (1973) Vol. 27, No. 6, pp. 2023-2026.
CODEN: ACSAA4. ISSN: 0001-5393.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: Unavailable
CONCEPT CODE: Biochemistry methods - General 10050
Biochemistry studies - General 10060
Biophysics - Molecular properties and macromolecules 10506
Pharmacology - General 22002
Plant physiology - Chemical constituents 51522
Pharmacognosy and pharmaceutical botany 54000
INDEX TERMS: Major Concepts
Biochemistry and Molecular Biophysics; Pharmacology
INDEX TERMS: Miscellaneous Descriptors
SYNTHESIS
ORGANISM: Classifier
Plantae 11000
Super Taxa
Plantae
Taxa Notes
Plants
REGISTRY NUMBER: 51081-69-7 (ETHYL-4-METHYL-3 COUMARINCARBOXYLATE)

L64 ANSWER 23 OF 23 TOXCENTER COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1998:178271 TOXCENTER
COPYRIGHT: Copyright 2005 ACS
DOCUMENT NUMBER: CA12924310494R
TITLE: 6,12-dihydro-1-benzopyrano[3,4-b] [1,4]benzothiazin-6-ones: Synthesis and mdr reversal in tumor cells
AUTHOR(S): Shah, Anamik; Naliapara, Yogesh; Sureja, Dinesh; Motohashi, Noboru; Kawase, Masami; Miskolci, Csilla; Szabo, Diana; Molnar, Joseph
CORPORATE SOURCE: Department of Chemistry, Saurashtra University, Rajkot, 360 005, India.
SOURCE: Anticancer Research, (1998) Vol. 18, No. 4C, pp. 3001-3004.
CODEN: ANTRD4. ISSN: 0250-7005.
COUNTRY: INDIA
DOCUMENT TYPE: Journal
FILE SEGMENT: CAPLUS

OTHER SOURCE: CAPLUS 1998:559945
LANGUAGE: English
ENTRY DATE: Entered STN: 20011116
Last Updated on STN: 20020521
ABSTRACT:
Six 6,12-dihydro-1-benzopyrano[3,4-b][1,4]benzothiazin-6-ones and 3 coumarins were systematically investigated for reversal of **multidrug** ***resistance*** of bacteria and cancer cells in model expts. 7-Methylcoumarin was able to eliminate the E. coli plasmid significantly; however, the other derivs. were ineffective. Four of 6,12-dihydro-1-benzopyrano[3,4-b][1,4] benzothiazin-6-ones had a moderate effect on the ***multidrug*** **resistance** efflux pump of mouse lymphoma cells in vitro. Despite of the similarity of resistance mechanisms of bacteria and tumor cells, the reversal of **drug resistance** in bacteria and in cancer cells is not uniform because the structure- activity requirements are apparently different.
CLASSIFICATION CODE: 1-6
SUPPLEMENTARY TERMS: Miscellaneous Descriptors
antitumor agent benzoaphenothiazine
REGISTRY NUMBER: 92-48-8 (6-Methylcoumarin)
2445-83-2 (7-Methylcoumarin)
REGISTRY NUMBER: 1076-38-6; 1846-76-0; 13252-83-0; 55004-75-6; 57529-10-9; 64729-38-0; 75908-14-4; 95835-73-7; 104654-80-0; 104654-84-4; 209051-70-7; 209051-71-8; 209051-72-9

=> □

=> fil reg
FILE 'REGISTRY' ENTERED AT 17:12:36 ON 25 APR 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 24 APR 2005 HIGHEST RN 849094-71-9
DICTIONARY FILE UPDATES: 24 APR 2005 HIGHEST RN 849094-71-9

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

****
* *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
* *
****

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more

information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

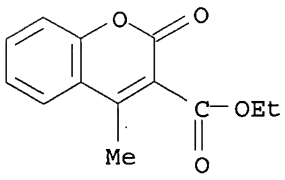
=> s 1846-76-0 or 51081-69-7

1 1846-76-0
(1846-76-0/RN)
1 51081-69-7
(51081-69-7/RN)
L65 2 1846-76-0 OR 51081-69-7

Hit RN's from Biosis & Toxcenter

=> d ide 1-2; fil hom

L65 ANSWER 1 OF 2 REGISTRY COPYRIGHT 2005 ACS on STN
RN 51081-69-7 REGISTRY
ED Entered STN: 16 Nov 1984
CN 2H-1-Benzopyran-3-carboxylic acid, 4-methyl-2-oxo-, ethyl ester (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 4-methyl-2-oxo-2H-1-benzopyran-3-carboxylic acid ethyl ester
CN Ethyl 4-methyl-3-coumarincarboxylate
FS 3D CONCORD
MF C13 H12 O4
LC STN Files: BEILSTEIN*, BIOSIS, CA, CAPLUS, CASREACT, CHEMINFORMRX, TOXCENTER
(*File contains numerically searchable property data)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

11 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
11 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L65 ANSWER 2 OF 2 REGISTRY COPYRIGHT 2005 ACS on STN
RN 1846-76-0 REGISTRY
ED Entered STN: 16 Nov 1984
CN 2H-1-Benzopyran-3-carboxylic acid, 2-oxo-, ethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN 2-Oxo-2H-1-benzopyran-3-carboxylic acid ethyl ester
CN 3-Carbethoxycoumarin
CN 3-Ethoxycarbonylcoumarin
CN Ethyl 2-oxo-2H-1-benzopyran-3-carboxylate
CN Ethyl 2H-1-benzopyran-2-oxo-3-carboxylate
CN Ethyl 2H-2-oxo-1-benzopyran-3-carboxylate
CN Ethyl 3-coumarincarboxylate
CN NSC 620
FS 3D CONCORD
MF C12 H10 O4